

# AMERICAN GAS ASSOCIATION MONTHLY



Vol. II

No. 4

April, 1920

## Annual Convention and Exhibition To Be Held During the Week of November 15-20, 1920

The Executive Board at its meeting on February 25th set the date for the Second Annual Convention and Exhibition for the week of November 15-20, 1920. The Hotel Pennsylvania will again be the headquarters, with more space for both the meetings and the exhibition than was available last year.

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FOR STATEMENTS AND OPINIONS CONTAINED IN PAPERS AND DISCUSSIONS  
APPEARING HEREIN, THE ASSOCIATION DOES NOT HOLD ITSELF RESPONSIBLE

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130 E. 15th St., NEW YORK, N. Y.

Vol. II      APRIL, 1920      No. 4

WITH THE EDITOR.

### Gas Oil

Gas Companies have received Service Letter No. 6 on the gas oil situation. Before this issue of the MONTHLY reaches our membership the Special Committee of the Board, appointed to make an immediate investigation of the gas oil situation and to recommend remedial action, will in all probability have completed its work and its conclusions will have been presented to our company members.

No one doubts that a serious condition exists, and the Special Committee has been giving its undivided time and attention to the matter. An unprecedented demand for gasoline and fuel oil, far in excess of even an appreciably increased supply, has brought about a condition which demands the immediate abolishment of all candle power standards wherever they exist and which will no doubt force many companies to apply for rate increases sufficient to meet the continual advances in the price of raw materials. To what extent lower grade oils may be satisfactorily substituted for high grade gas oils remains to be determined, but it is certain that candle power cannot be maintained if the gas industry is forced to the use of heavy distillate oil. Candle power requirements must go; they are useless and wasteful. Utilities are entitled to a fair rate of return upon a fair investment. A gas of uniform low heat value standard, with a sufficient increase in rates to give a "living wage" to the investor must be the inevitable outcome.

### The Coal Supply and Preparedness

Figures compiled at the request of the National Bituminous Coal Commission, to show the monthly deliveries of gas coal to gas companies in 1919, and the

ratio of storage capacity to tonnage received, bring out some interesting facts. It is evident that most gas companies have made an earnest effort to take as much coal as they could get during the Spring and Summer months, when transportation and other conditions were favorable.

From exact data reported by a group of companies, representative both as to size and geographical location, it is estimated that the total bituminous coal storage capacity approximates 25 per cent. of the bituminous tonnage delivered to gas companies in 1919. In some cases it is more, in others less; but as an average figure it is reasonably correct.

In the light of this creditable showing, it is improbable that the gas industry will be charged with having attempted to trade on its priority rights, or with having failed to provide adequate storage capacity. Neither can it be said that they have not made every effort to maintain coal reserves sufficient to tide over emergency periods. The truth is that many gas companies have been unable to get the quantities they were prepared to take and store, and the result has been a very general depletion of reserve stocks.

There is talk of inductive rates to encourage early buying, but this may not materialize. Any great increase in storage capacity must impose a financial burden which, under present conditions, gas companies are in no position to carry. However, lower seasonal freight rates in Summer, together with longer credits from coal operators and a lower price of coal for Summer storage might be made to offset increased storage and handling costs. The Trade Acceptance may help to solve the problem. But whatever the solution may prove to be, we again urge upon gas companies the necessity of reasonable and adequate storage capacity and full stock before another Winter sets in.

Preparedness in coal supply is just as important now as it was a year ago. Don't wait!



# AMERICAN GAS ASSOCIATION MONTHLY

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## Ole Hanson on Municipal Ownership

*We are indebted to the New England Association of Gas Engineers for permission to reprint the address of Hon. Ole Hanson, former Mayor of Seattle, Washington, which he delivered at the 49th Annual Convention of that Association in Boston on February 19, 1920.*

I AM engaged in a lecture trip throughout New England. I am stopping in the hotel, and of course, having made as careful a study as I could in relation to the public utilities in my own city I was interested in your convention. I came in; I did not know that anyone would know me. I will be very glad to give you some first hand information as to the operation of municipal ownership in relation to our public utilities in Seattle.

Our city twenty years ago had 83,000 people. In ten years we had grown to 240,000. Our population is about 350,000 to 400,000 now. Some years ago the Stone & Webster people consolidated our street car lines in the city of Seattle. They also developed large water power for the production of electric light, having one of the most economical developments in the White river that I know of in this country. From the time of the

installation of the first street railway in Seattle there had been continuous trouble. I do not know who was to blame. I think all sides were to blame.

When the light plant was established some fifteen years ago, the city of Seattle started to produce its electric light and power in a small way, having but one hydro installation, which produces a maximum of 9,500 kilowatts. We used the municipal light plant in the endeavor, as the citizens thought, to secure a fair rate from the electric company, which sold and produced a great deal of energy. When I became Mayor I believed that the only outcome of the agitation in relation to street railways, and probably electric power, was municipal ownership. I had come to the belief that the public was so prejudiced against public utility corporations that it would not give them a square deal, that the end of the

investment in public utilities from the private standpoint had passed. I served as Mayor eighteen months.

When I became Mayor I desired to investigate and understand as well as I could the working of our electric light plant, and I found that we had a fairly good installation, though more or less temporary. I found that we had added a steam plant to the hydro. I came to believe that we were not as efficient or as fair in our charges and in our working of our municipal utilities as we could be. I found that, for instance, where we installed perhaps a million dollars worth of war time connections—purely temporary—that instead of charging those installations to the consumers, we sold the electric energy sometimes at less than the average cost of production, and added to plant account the investment which any sound thinking man would agree should have been charged off in increased rates in three or four years.

We charged from half a cent to five and a half cents a kilowatt for our energy. We had been giving away our carbon lights. I did not know why, because the carbon light, as I was informed, cost the consumer a great deal more. I wrote a letter to the superintendent of the light department, and ordered him to discontinue the giving away of the carbon lights. We were giving away \$40,000 worth of carbon lights a year to the consumers, and I don't know how much the increased cost was to those who accepted our "free" carbon bulbs. Well, we saved \$75,000 or \$80,000 that way. There was a continual struggle to cut the rates below the actual cost. Men became candidates for office with no other issue than the fact that they were for municipal ownership. But when the time came to take care

of the utilities in a business way (because in the final analysis the man that burns the light must pay for the light, and not the tax payer. That is all there is to it). They were always found on the side of cutting the rate to the man that used the power or light, and by some camouflage or other, by bookkeeping or otherwise, apparently showed a profit.

The time came when the Stone & Webster people, who operated our street car lines, could not operate at the five cent fare. I did not know a great deal about the street car business, but I did know enough to get men that did know, and we had access to the books of the company. We found that the company over a period of several years had made an average of  $2\frac{1}{4}$  per cent. on their street railway business in spite of the fact that they carried the cost of the energy, which they purchased from themselves at almost nothing; at very much less than the cost.

The State law said that they could not charge more than five cents. The men were working at the old scale of wages. The government came to the city of Seattle and demanded service to the ship yards. There was no way that the company could give the service, or even secure the money to make the necessary developments. On their last loan of \$12,000,000 I was informed that they paid  $9\frac{1}{4}$  per cent. interest to secure that loan, to take up old bonds. Mr. Taylor, the head of the transportation of the government, came out. There was a great demand for the service to the ship yards. The people demanded more service. The company was unable at that price to give service. We could not, if we would, lawfully grant them an increase of fare. Finally we made the company a proposition to lease the street car lines for a period of years at the average of what

they had earned in the previous five years. Of course I was representing the city; in other words, I was the manager for the city of Seattle, as you might say.

Well, the company allowed us to go through their books, and we began at the first day that the first excavation was made and the first tie and rail laid, and we carefully and conscientiously chose the accountant that the municipal ownership advocates in the council wanted to be chosen. We found that the street car lines in the city of Seattle had cost, actually cost, without any camouflage, without any bunk, without any water, *in money* \$15,000,000.

There were three courses open to me as Mayor. One was to drive this company to the wall, practically confiscate the investment in their lines; the other was to pay the reproduction cost, which would have been absolutely unfair, as the cost of reproduction would have been twice the cost of production in the original enterprise, or, on the other hand, to go to the company with a proposition that we would pay them for their lines the money that they had actually invested.

I decided that I did not have to steal for the city of Seattle, any more than I would have stolen for myself in a private capacity. We offered them \$15,000,000 in bonds on twenty years' time, installments beginning after the third year, at 5 per cent. interest for their street car holdings. It had proven an unprofitable enterprise. It had become more and more unprofitable as the resentment of the people increased. We then submitted the purchase to a vote of the people of Seattle. They purchased the street car lines by a vote of four and one-half to one. The Puget Sound accepted the \$15,000,000 worth of bonds.

I had previously appointed a man to take charge of our little municipal street car line, which was already operating. He was a man who was energetic, honest, courageous, and a close student. We secured as many of the Stone & Webster men as we could, and went to work operating the street car line. The operation of the street car line was successful. We found it cost \$2.40 an hour to operate a street car, figuring everything on our streets. We put on more street cars and gave from 1000 to 1500 hours more daily service. We increased our income, but on account of the increase of wages made necessary on account of the increased cost of living it was hard sledding. The right thing to have done, the thing I wanted to do, was to have the public pay a sufficient increase commensurate with the cost of hauling, especially as we had to reduce the principal and pay the interest.

We entered into a contract to buy the energy necessary from the Puget Sound Electric Company, stepping down, as we wished, 5000 kilowatts after the third year. Our figures showed us that it would cost something like \$750,000 per year for the energy to run the street car line at one cent K. W. on the far side of (what do you call it?) the transformer—and that was a reasonable price, we thought. We put on the street cars little testing arrangements whereby each motorman received a prize for using less energy on his run, and we were able to cut that expense very materially, I think something like \$150,000 a year.

Of course, we used the city's legal force at the taxpayers' expense for all suits. All the departments did it. The company would come into court with a damage suit, and the verdict would be \$5000; we would go into court with a damage suit, and the verdict would be

\$500. They could sue the company under our laws at any time within three years; under our laws they had to begin suit against us within thirty days or they were out of the court. We did everything possible, speeding up the cars almost to the danger point, to make the street car lines pay.

The street car men, believing that they owned the street car lines, made a demand at one time that unless we granted their demand they would strike. I called their leaders into the office, and told them that it would please us very much if they would strike. They talked strike,—we had raised their pay from 35 and 40 cents an hour to over 60 cents, I believe,—and I asked them for God's sake to strike, so that we would get rid of some of the poor men. Under the Civil Service we could not discharge them. Well, they did not strike.

This man Murphine who took charge of the street car lines, worked twenty hours a day, as did other men interested in the street car business. We did everything possible. But just as soon as the primaries, which took place day before yesterday, began to get near, men became candidates for the office of councilman and for the office of Mayor, and in every community where they spoke they promised extensions, promised to force through extensions when there was no reason for the extensions and no way in God's world at any rate of fare where the municipal street car line could even carry the interest charges on the extensions. Instead of taking the public utility out of politics, it became at once the football of politics. Wherever a man in overalls made a demand, it was almost impossible to keep him at the scale of the man in private employment—hardly possible; but the city would only pay for the head of that street car line, representing

an investment in total of something like \$17,000,000 or \$18,000,000, \$4,500 per year. The result of course would be that as soon as a man was trained and became efficient in charge of any municipal utility that some private company would step in and take the brains away from us. I have come to the conclusion that there is but one way to operate the great public utilities and railroads of this country, and that is that the public must be educated to understand exactly what the public utilities are up against and must be taught to be fair.

I think every advantage should be given for the conduct of the private enterprise, and it should be allowed to remain in private hands. I think that whatever economies a government running a railroad is allowed to make, whatever correlation or combination the government, for instance, has made which has brought about savings in government ownership and operation of railroads, the private companies should have the right to correlate, to combine and to operate.

I believe that with public encouragement we can get our public utilities operated properly. I believe, on the other hand, that the public must be protected from extortion, and from robbery and from poor service. But I cannot believe from my experience that the public utility that employs any large number of men, or where a large amount of capital is necessary, can or will function as efficiently as a publicly operated utility as a private corporation which has an individual reward at the end of the day. (Applause.) Nor do I believe that the cities of this nation or the government of this nation will ever be willing to pay for brains. Brains are the cheapest thing there is in government, and you are driving the men of brains away because of

poor recompense. (Laughter.) When you do get brains you cannot keep it, because the other fellow bids more for it. I think that is the main fault with our government ownership and municipal ownership.

I don't believe you men have told the facts of your business in one and two syllable words to the public. Everybody believes, for instance, that the gas companies make a lot of money. You and I know that the gas companies and all the public utilities have been fighting for their lives during this period of increased cost. Of course the street car lines have a sacred fare, and you must not interfere with that five cent fare. It might have been three, or it might have been six, but it is five, and the moment you raise that fare from the sacred nickel to six or seven cents, or whatever is necessary, the public apparently reacts, and from statements that I have received a raise in the fare very often does not bring a proportionate raise in the amount of receipts.

I have traveled during the past four months through all the states of the union but two. I have ridden on the government railroads. I have sat up all night because of lack of screens in Texas, killing mosquitoes. I have ridden on the Cotton Belt. If you know where the Cotton Belt is you know what it is to ride on the Cotton Belt road in normal times. When you go on a journey now in the southwest, probably the southeast as well, you don't really embark on a journey, you embark on an adventure. (Laughter.) You kiss your wife good-bye, and your children good-bye, and you are in great good form if you make a trip of 200 miles and come within four hours of schedule.

Now, my thought is this: that that is not entirely the fault of government

ownership. Before the war the prejudice of the people had been so inflamed against the railroads that the very bodies who were supposed to be above prejudice refused in many instances to grant the railroads of this country commensurate rates. In other instances a few railroads had been looted, dividends had been declared where they should have gone into equipment, etc. And from my experience in traveling over this country, after the government has had the roads and has operated them, I believe that it will take perhaps 15 years to rehabilitate the railroads of this country. I know whole systems where there is not a single train that even tries—that dares try—to make the slow schedule on which they are running. I can show you abandoned and unrepared cars, or cars in need of repairs, on the side tracks all over the west. Now, it will take billions of dollars, and it will take ten or fifteen years of time before our transportation system is in the condition to function with our growing industries.

It seems to me it should be the work of every honest man, whether he is in the utility business or whether he is just a man like myself that has no particular interest to serve, to educate the public to the truth. The truth is that many railroads have been starved. That is the truth. The truth is that under government ownership their repairs have not been kept up. The truth is that under government ownership railroad help is not as efficient. It is not. I saw in Dallas a train made up to go to Texarkana. Each man had a separate job, I presume, but we waited one hour and forty-five minutes for the mail to be loaded in the mail car, while sixteen men at that station, connected with the railroads of this country, stood idle, in overalls, and watched one man load that car.



The time has come, it seems to me, to speak plain. It is no use pussyfooting any longer. The time has come when we have got to come right out and tell the truth to the people, and let them understand that the United States government is not a self-perpetuating Christmas tree for the benefit of anyone. (Applause.)

During the war that was all right, it was necessary to do these things, but the time has come now, it seems to me, to stand by and see that the investors get a run for their money. I have not a dollar's worth of bonds or stock in any railroad or public utility enterprise in the world, but I want to be fair. It seems to me the time has come to protect that great body of men and women who put their money in public utilities, and who during this war have had their entire capital cut in two, and you have never heard a murmur from them. The man who invested \$10,000 in a railroad bond seven or eight years ago, or five or six years ago, simply has \$5,000, figuring on the meat and clothing and house rent basis. We must see to it, if we are honorable men, that those men get a run for their coin, or else we are thieves.

If we want to make the American government a kind of a pickpocket, the way to do is just to confiscate these great properties throughout the country. If after a time it becomes impossible for a utility enterprise that has honestly and conscientiously expended the public's money in creating or developing or building a gas plant or an electric plant or a street car plant, if the time comes that they cannot operate and it is impossible for them to get by, there is only one way; we must raise that rate so that they can get by or we must refund to them the money they put in the enterprise. (Applause.)

I think that the best thing that you men could do would be just to tell the plain truth to the people. Of course I know what these little spittoon philosophers in every town say about all corporations, but in the final analysis the corporations are owned by the great rank and file of the people, who have been thrifty enough to lay something aside for a rainy day, and I believe that our work, especially every public man's work in this country, is to see that those men get justice and at the same time see that the public get adequate service at a fair and compensatory remuneration.

I have never talked on this subject before, and I thank you, gentlemen. (Applause, everyone rising.)

### **It Is Time to Unshackle Industry, Says Senator Harding**

Speaking at the annual dinner of the Providence Chamber of Commerce on February 25th, United States Senator Harding, of Ohio, said the time has come for the Government to relinquish control of industry.

"We shackled, regulated, restrained, repressed and advised during the war," he said, "and it was accepted as a war necessity, but now we are at peace—actual peace if not formal peace—and it is time to unshackle. We need vastly more freedom than we do regulation, and we need the restored freedom of business and men."

Senator Harding remarked that there would be no return to pre-war conditions in industry or commerce, for capital and workmen are now facing a new order. He said further:

"I believe in the collective bargaining of workmen so long as it does not deny any American the fullness of his freedom. But the bargain must be binding on all parties to the contract. Production is the call of the world today."

## Annual Meeting of the New England Association of Gas Engineers

**I**F illness prevented as large an attendance as had been expected at the 49th Annual Meeting of the New England Association of Gas Engineers, held at the Copley-Plaza in Boston, February 17th and 18th, it failed to dampen the ardor of those who were on hand or to interfere with a noteworthy program.

The admirable and scholarly address of the President, Mr. A. M. Barnes, has been reprinted in full in the Gas Journals and merits thoughtful perusal. We are particularly appreciative of the generous reference made by Mr. Barnes to the work of the American Gas Association. The New England Association has contributed in full measure to the work of the A. G. A., and the spirit of co-operation has at all times been in evidence on the part of New England gas men. Their active participation in the Association's affairs has been an important factor in its success.

The following papers were read:

"Coal Gas Results in New England"

Report of Committee.

"Lighting of Nashua, N. H., High School Building"

W. F. Norton.

"Readjusting of Gas Rates"

C. H. Priest.

"Some Notes on Use of Gas in Brass Foundry"

H. H. Smith.

"Advertising"

A. A. Higgins.

"Repairing an Unusual Break"

H. N. Cheney.

"Diminution of Waste Heat Losses in Water Gas Operation"

H. L. Nickerson.

An added feature to the program was an address by Ole Hanson, former Mayor of Seattle, at one time a warm

partisan of municipal ownership. He is now just as strong an advocate of the operation of public utilities by private enterprise, and so earnestly stated were his convictions on the subject, carrying with them the evidence of sincere belief, that on more than one occasion his remarks were interrupted by outbursts of applause. This address is printed in full elsewhere in this issue. It is about as convincing a declaration against municipal ownership as has recently been made.

Captain W. E. McKay presided over the banquet which was held on Wednesday evening. The speakers included the retiring President, Mr. A. M. Barnes; the President-elect, Mr. N. F. Norton; Nashua, N. H., Mr. Eugene MacGregor of Harris-Forbes & Company; Mr. Alonzo Weed, Chairman of the Massachusetts Utility Commission; Mr. Oscar H. Fogg, Secretary-Manager of the American Gas Association, and the venerable president emeritus of Harvard University, Dr. Charles W. Eliot. Dr. Eliot reminisced in a delightful way and recalled the development of the lighting industry in and around Boston from the time when, as a lad, he watched the lamp lighter on his evening rounds from the window of his home on Beacon Street, through his under-graduate days at Harvard and on through the period that has made New England one of the great industrial centres of the world. His view on labor conditions and the present problems of industrial life disclosed a keen knowledge of the economic conditions confronting not only the gas industry but all of the Nation's industries. His address was a fitting climax to a successful occasion.

## Four Minute Men Speaking for the Public Utilities

**T**HE Illinois Committee on Public Utility Information has inaugurated a new department of its activities for developing the speaking talent in the combined public utilities of the state, which will be helpful to those now actually speaking in public or those who may have aspirations in that direction.

The committee has started the issuance of a series of "Speakers' Bulletins" patterned after those used with such success by the Four Minute Men during the war.

The idea is to suggest to utility men something to say when called upon for a speech, whether it is before a civic organization, Rotary Club, commercial association, city council, men's or women's club.

The lack of information or ability to present facts has kept many men engaged in the utility field from taking advantage of opportunities to speak of their business before public gatherings.

A number of companies in Illinois have already formed speaking classes, and in one case an instructor has been employed to direct the work.

The Indiana and Kentucky Public Utilities Committees, patterned after the Illinois Committee, are also arranging to carry out such a public speaking plan and the Iowa and Nebraska Committees will do so as soon as they have their organizations perfected.

The first of the series of Speakers' Bulletins, dated February, 1920, gives authoritative definitions, facts, statistics, statements of experts and similar data for use in public addresses and offers many suggestions to speakers.

The public has a right to, and should know the facts, and every public utility man, whether executive or employee,

should fit himself to go before his public and freely and frankly state his case in a clear and convincing manner.

The importance of presenting facts and figures to those we serve and the establishment of a spirit of understanding and good will between the utilities and their public is a matter of such vital importance as to demand the serious consideration of gas company executives. It is, therefore, suggested that our member companies communicate with the Illinois Committee on Public Utility Information, 203 South Dearborn St., Chicago, for further details of their plan and copies of the Speakers' Bulletins.

It suggests itself that the gas associations affiliated with the American Gas Association might find it to the advantage of the companies in their respective states to give this matter further thought, looking to the general adoption of such a plan.

### Special Committees to Handle Important Subjects

The Executive Board at its meeting on February 25 discussed at some length two matters which have a most important bearing upon the interests of gas companies, *viz*; the threatened shortage of gas oil and the matter of Federal Taxation.

Two committees were appointed to study and keep in close touch with these important matters, the committee on the oil situation being composed of Mr. J. B. Klumpp, Chairman and Messrs. R. B. Brown, D. D. Barnum and L. R. Dutton, all being members of the Executive Board. The Committee on Taxation consists of Senator Edmund W. Wakelee, Chairman and Messrs. R. A. Carter, P. H. Gadsden, G. G. Brownell and William McClellan.

## GENERAL

### CHAIRMEN OF GENERAL COMMITTEES ORGANIZED TO DATE

**National Bureau of Standards** (Advisory Committee)—O. H. FOGG, New York, N. Y.  
**Beal Medal**—GEO. B. CORTELYOU, New York, N. Y.  
**Accident Prevention**—JAMES B. DOUGLAS, Philadelphia, Pa.  
**Amendments to Constitution**—WM. J. CLARK, Mt. Vernon, N. Y.  
**Chamber of Commerce, Membership in**—CAPT. WM. E. MCKAY, Boston, Mass.  
**Calorific Standards**—J. B. KLUMPP, Philadelphia, Pa.  
**Central Development and Testing Laboratory**—W. H. GARTLEY, Philadelphia, Pa.  
**Educational**—WALTON CLARK, Philadelphia, Pa.  
**Finance**—E. H. ROSENQUEST, New York, N. Y.

**Gas & Electric Service** (National)—W. H. GARTLEY, Philadelphia, Pa.  
**Gas Securities**—RANDAL MORGAN, Philadelphia, Pa.  
**Funds for Gas & Electric Service**—H. L. DOHERTY, New York, N. Y.  
**National Fire Protection Assn., Membership in**—W. R. ADDICKS, New York, N. Y.  
**Relations with Other Assns., etc.** (Formation of Geographic and Company Sections)—L. R. DUTTON, Jenkintown, Pa.  
**Standard Gas Appliance Specifications**—W. T. RASCH, New York, N. Y.  
**Standard Pipe Threads** (International)—W. CULLEN MORRIS, New York, N. Y.

## From the Board Room

**A** WELL attended meeting of the Executive Board was held on February 25 at the offices of the Association in New York.

There were approved for election to membership 15 gas companies, 5 manufacturer companies and 57 individuals. Most of these applications are due to the efforts of our Membership Campaign.

The Board will meet in Chicago on March 17 at 2:30 P. M. in the offices of the Peoples Gas Light & Coke Company and on the evening of the same day those present will attend the dinner of the Illinois Gas Association.

The seriousness of the present gas oil situation was the subject of extended discussion. A Special Committee of the Board was appointed to make a thorough and immediate investigation of the subject. This committee, consisting of J. B. Klumpp of Philadelphia, Chairman, D. D. Barnum of Boston, R. B. Brown of Milwaukee, L. R. Dutton of Jenkintown, met immediately upon adjournment of the Board meeting and its preliminary statement has already appeared in our Service Letter No. 6, which also gives in full the resolution adopted by

the Board with regard to the oil situation and the action ordered taken in this matter.

A discussion of Taxation matters led to a resolution authorizing the President to appoint a special committee to consider the subject of Federal Taxation with special regard to the gas industry.

The Secretary-Manager reported that with Mr. Paul Thompson of Philadelphia he had appeared before the National Bituminous Coal Commission and before the Sub-committee of the Senate Committee on Interstate Commerce on February 17 to present the position and views of this Association on matters connected with the bituminous coal supply. Our Service Letter No. 5 reports this situation at length.

The recommendation of the Joint Committee of the Manufacturers and Accounting Sections on the subject of Trade Acceptances was presented and received the endorsement and approval of the Board, with the suggestion that the attitude of the Federal Reserve Banks on the subject of Trade Acceptances be definitely determined before final recommendations to our membership are made.

The revised classification submitted by the Committee on Standard Classification of Accounts was approved and its use authorized as reflecting the views of the Board in conferences with appropriate committees of the National Electric Light Association and the National Association of Railway and Utility Commissioners.

The Board approved the week of November 15-20 as the period for the Second Annual Convention and Exhibition, which will be held at Hotel Pennsylvania, New York.

The appointment of a committee to co-operate with educational institutions, with a view to bringing to the attention of technical students the opportunities which our industry offers to those about to engage in business, was deferred until the March meeting.

The reports of the Accounting, Commercial, Manufacturers, Publicity and Technical Sections were presented by their chairmen. Gratifying progress is being made in the sectional work, all of which is organized and for the most part well advanced. Every effort is to be made to arrange the program for the annual meeting so that ample time will be allowed the discussion of papers and reports. It is the intention to not withhold the publication of committee reports until the annual meeting but to make the results of committee work and recommendations arrived at available for the use of the membership as soon as completed.

Subscriptions have been received to finance the work of the National Committee on Gas and Electric Service sufficient to meet the total expense incurred up to April 30, 1919, and to leave a small balance, which will be applied to cover the additional expense incurred by the re-

sumption of the Committee's activities in the fall of 1919, when the seriousness of the bituminous coal situation made necessary the re-opening of the Washington office.

These notes include only matters of general interest. Record of the routine business transacted is omitted as are also other matters of which notice appears in our Service Letters, the MONTHLY, or elsewhere.

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### Obituary.

Colonel Frederick S. Benson, 81 years old, and pioneer gas manufacturer of Brooklyn, and a veteran of the Civil War, died on Monday at his summer home at Atlantic Highlands, New Jersey. Colonel Benson was formerly chief engineer of the Nassau Gas Light Company, and after its consolidation with the Brooklyn Union Gas Company became chief engineer of that Company's eastern division until 1907 when he retired. For many years he was President of the Society of Gas Lighting.

Mr. Daniel J. Prendergast died on December 5th, 1919, at the age of 68. He had been identified with the gas business for many years, and at the time of his death was General Superintendent of the Welsbach Street Lighting Company of America, with headquarters in New York City. He had been interested in the street lighting business since the early 80's and was always an ardent admirer and supporter of the American Gas Association and its predecessors.

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## Member Companies Advised of Bituminous Coal Situation in Service Letter No. 5.

On February 17, 1920, the following representatives of Public Utility interests appeared before the National Bituminous Coal Commission at Washington for the purpose of stating the position of the Public Utilities in relation to the bituminous coal situation. On the afternoon of the same day the same group appeared before the Sub-committee of the Senate Committee on Interstate Commerce, and the arguments there presented were practically those submitted in the morning before the Commission.

George W. Elliott, Secretary, National Committee on Gas & Electric Service.	Representing— American Gas Association, National Electric Light Association, American Electric Railway Association.
Paul Thompson, Vice-Pres., United Gas Imp. Company.	For the American Gas Association.
Oscar H. Fogg, Secy.-Mgr., American Gas Association.	
Charles L. Edgar, Pres., Edison Elec. Illuminating Co. of Boston.	For the National Electric Light Association.
M. H. Aylesworth, Executive Mgr. Nat. Elec. Light Assn.	
Arthur W. Brady, Pres., Union Traction Co. of Indiana.	For the American Electric Railway Association.

There was read into the record in each case the letter presented by the Secretary of the National Committee on Gas & Electric Service, under date of January 13th, to the National Bituminous Coal Commission and the Attorney General of the United States. The letter is given in full in our Service Letter No. 4 of January 16th. Mr. George W. Elliott amplified the statements contained therein, and other utility representatives emphasized the points of chief importance to the utilities in whose behalf they appeared.

The National Bituminous Coal Commission consists of three members: One representative of the miners, one representative of the operators and the Chairman, a representative of the public, appointed by President Wilson to investigate and advise the President generally in regard to the coal situation, and if the report is unanimous, it is understood that the President will act in regard to wages to be paid to miners and prices to be charged for coal.

The Chairman of the Commission had already announced that the Commission had no jurisdiction in regard to the fourteen per cent. increase in miners' wages which had been passed by the coal operators to the public utilities, except insofar as the Commission in its findings would give broad consideration to all of the facts.

While the statements made by the witnesses dealt with many subjects as to which the jurisdiction of the Commission is questionable, the Chairman of

the Commission permitted all such statements to be made so that the Commission could comment upon the subjects discussed in its report to the President.

The matters of principal importance from the standpoint of this Association were:

- (1) The fourteen per cent. increase in miners' wages which the coal operators in many sections have assessed to gas companies under existing contracts.
- (2) The confiscation and improper use by railroads of high volatile gas coals.
- (3) The difficulty of securing adequate coal supplies in the face of existing embargoes, car shortages, etc.
- (4) The possibility of conservation of bituminous coal and oil through the universal adoption of a uniform heating value standard for gas.

The representatives of the public utilities frankly stated to the members of the Commission that the bituminous coal operators, after having agreed with Dr. Garfield, then Fuel Administrator, to accept and absorb the fourteen per cent. increase in miners' wages to the end that the burden should not be placed upon the public, had entirely changed front and in billing the public utilities for the fourteen per cent. increase in miners' wages in cents per ton, had alleged that all contracts for coal existing on October 30th had been expressly excepted in the agreement made with Dr. Garfield.

It is unfortunate that Dr. Garfield was unable to testify as to his understanding of the agreement and also unfortunate that insofar as the public utilities and the public are concerned, the United States Attorney General has taken the position, that the question of fourteen per cent. increase in miners' wages where contracts existed on October 30th, is a private matter between the parties to the contract and is in no sense a Governmental matter.

It was pointed out that the public had been led to believe that the fourteen per cent. increase in miners' wages had been absorbed by the coal operators and that President Wilson had so stated in December, 1919. It was also pointed out that if the coal operators had intended to except from the agreement with Dr. Garfield all contracts existing on October 30th, this fact should have been expressly stated because eighty-five per cent. of the coal produced was sold under contract and ninety-eight per cent. of the coal purchased by public utilities is contract coal. It has been made entirely clear to both the National Bituminous Coal Commission and the Sub-committee of the Senate Committee on Interstate Commerce that any increase, large or small, if saddled upon the public utilities must inevitably be borne by the consuming public. It was pointed out that gas companies are compelled to operate under regulations which restrict their earnings, and that it is altogether out of the question for them to be expected to bear any increase in the price of coal without providing for a corresponding increase in the rates for gas.

Without regard to the legality of the position taken by the coal operators, the members of the Commission were told that the position now taken by the operators as to contracts existing on October 30th was not in accord with the terms of the agreement between the operators, Dr. Garfield and the miners, and that it would be particularly difficult for the public utilities to convince the public and the regulating authorities that the fourteen per cent. increase in miners' wages had been charged to the public utilities, in view of the repeated statements

made by public authorities and the operators that the fourteen per cent. increase would be absorbed by the coal operators and not passed on to the consuming public.

Emphatic protest was made against the practice of the railroad administration and certain railroads of confiscating for railroad use coal consigned to public utilities. The economic waste resulting from the improper use of high volatile gas coals was pointed out, and the resolution of the Executive Board of the American Gas Association, which had already been presented to the United States Railway Administration, was read to the Commission and incorporated in the record. (See resolution, page 66, American Gas Association MONTHLY, February, 1920.) The prohibition of this practice was strongly urged upon both the Commission and the Senate Sub-committee.

The difficulties of gas companies in securing adequate supplies of bituminous coal, in the face of existing embargoes, car shortage, etc., was brought out, and while the Commission has no direct jurisdiction in this matter as has been pointed out, the testimony was received with evident interest and it is hoped will have some effect in leading to remedial action.

Similarly, while neither the Commission nor the Senate Sub-committee have authority to act in the matter, their attention was directed to the fact that the universal adoption of a uniform heating value standard for artificial gas would be desirable as a measure of conservation of both bituminous coal and gas oil.

The representatives of the public utilities recommended that upon the dissolution of the Railway Administration, and continuing for the present and until the fuel market approaches a normal condition, some government bureau of control be established, so that the problems arising daily with regard to price, distribution, confiscation, etc., may be speedily and equitably adjusted with due regard to the rights of the public utilities and the public they serve.

Subsequent to the hearing before the Sub-committee of the Senate Committee on Interstate Commerce, Senator Frelinghuysen, Chairman, brought before the Senate, sitting as a committee of the whole, some of the matters presented by the representatives of the public utilities and particularly called the attention of the Senate to the fact that there was no adequate control over the coal situation and called for some action by the Senate.

It was brought out at the hearing before the Commission that there were many constructions as to the fourteen per cent. increase in miners' wages where contracts existed on October 30th. Mr. H. B. Spencer, Purchasing Agent for the United States Railroad Administration, and Chairman of the Central Coal Committee, has held that the fourteen per cent. increase in miners' wages cannot be applied in contracts between the railroads and the coal operators, while Special Counsel for the Fuel Administration has held that the position of Mr. Spencer is unsound. Coal operators in Indiana have assessed to the public utilities the fourteen per cent. increase in miners' wages, but not to an amount exceeding the price fixed by the Government. Operators in other States have applied the increase regardless of Government price. It will be seen, therefore, that if the public utilities have a legal right in this matter, it becomes in reality a right without a remedy.

If we assume that the Bituminous Coal Commission will unanimously agree on miners' wages, it is quite probable that an additional increase in the price of coal will be assessed to the public utilities. It is believed that the position taken by the public utilities will have its effect in minimizing any increases in price of coal which may hereafter be provided for by Federal order or otherwise. It is to be hoped that Congress will immediately pass legislation providing for a Fuel Administrator and adequate machinery to control the coal situation until normal conditions have been restored.

The Press Bureaus in sending out accounts of the hearings described above have conveyed the information to the public that the fourteen per cent. increase in miners' wages, if passed to the public utilities, must in turn be assessed upon the consuming public, and that the representatives of the public utilities were appearing before the Commission and the Senate Sub-committee in the interest of the public they serve. Chairman Robinson of the Bituminous Coal Commission announced that in making its final award the Commission would take into consideration the fact that the operators had assessed the public utilities with the increase in wages which the public had been led to believe would be absorbed by the operators.

The Commission extended to the utilities representatives the opportunity of filing a brief and requested that there be included certain information with regard to the deliveries of bituminous coal by months during 1919, and the coal storage capacity of utility companies. Estimates made for the gas industry based on exact data from a group of companies, representative both as to size and geographical location disclosed a very creditable condition, indicating that the total available storage capacity for bituminous coal was at least 25 per cent. of the total tonnage of bituminous coal received during the year 1919.

It was intimated by Chairman Robinson of the Commission that some inducive proposition might later be advanced designed to encourage the early purchase and storage of coal for the purpose of relieving traffic congestion and bringing about a more uniform labor condition at the mines. It is obvious that for their own protection gas companies will do well to make early purchases and attempt to restore their depleted reserves.

## A. G. A. Takes Action on Gas Oil Situation— Service Letter No. 6.

The Executive Board at its meeting on February 25, gave considerable time to a discussion of the shortage of gas oil and adopted the following resolution:

(Extract from Minutes of meeting of the Executive Board of the American Gas Association, February 25, 1920.)

WHEREAS: It has been brought to the attention of the Executive Board of the American Gas Association that a number of its Gas Company members are unable to secure satisfactory assurances of a continued supply of gas oil, and that the difficulties which

now confront Gas Companies in securing adequate supplies of gas oil for the manufacture of gas, have created a most critical condition which threatens the continuity and character of the supply of gas to the public in the various cities of the United States;

**THEREFORE, BE IT RESOLVED:** That a Special Committee of this Board be appointed by the President to give immediate consideration to this subject and because the seriousness of this situation vitally affects the gas supply of the country that this Committee bring to the attention of the Public Service Commissions of the various States the fact that this shortage of gas oil exists; with a view of soliciting their advice and assistance and alleviating the conditions described, and, further that this Committee be directed to complete its investigation with the greatest possible dispatch and report to the Board its recommendations for remedial action.

A Special Committee of the Board was immediately appointed, consisting of J. B. Klumpp, Chairman, R. B. Brown, D. D. Barnum, L. R. Dutton.

The Committee has already dispatched to the various State Utility Commissions and other regulatory bodies and government bureaus the following letter: Gentlemen:

There is enclosed a copy of a resolution adopted by the Executive Board of the American Gas Association at its meeting on February 25, 1920.

The Special Committee of the Board appointed under this resolution consists of J. B. Klumpp of Philadelphia, Chairman, R. B. Brown of Milwaukee, D. D. Barnum of Boston and L. R. Dutton of Jenkintown. These gentlemen will take this matter under immediate advisement, but it is of such great importance that the enclosed resolution is forwarded to you at once in order to avoid delay.

As soon as the Committee's investigation permits, you will receive a more detailed presentation of the subject from its Chairman. In the meantime, whatever advice or information you may have on this subject, or any suggestions which you may care to make, will be very much appreciated and should be addressed to the undersigned at these headquarters for transmittal to the Committee.

Yours very truly,

(Signed) OSCAR H. FOGG,  
*Secretary-Manager.*

In the meantime, the Committee has given the subject of gas oil supply careful consideration and feels that this problem is at the same time intimately related to rates and standards for gas supplied to consumers quite as much as it relates to the amount of gas oil procurable. The committee is giving continuous consideration to the subject and will communicate to you any facts of interest which may develop.

It is suggested that any company which is experiencing difficulty in securing gas oil, promptly forward to these headquarters a statement of the facts for the Committee's information and for the purpose of facilitating its work.

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### Notice

The 1920 annual meeting of the Pennsylvania Gas Association will be held in Philadelphia, Pa., at the Hotel Adelphia, on April 13-14-15 instead of April 14-15-16 as previously announced.



## A Steady Growth in Membership

In his annual address to the New England Association of Gas Engineers, President Albert M. Barnes of Cambridge, Mass., paid a highly complimentary reference to the work of the American Gas Association and urged, as his predecessor, Mr. J. A. Norcross had, done, that those who have not already joined become members of the A. G. A. not alone for the many benefits the individuals and companies they represent will derive, but also with the idea of doing something which will promote and extend the national association's usefulness.

Mr. Barnes said in part:

"There stands a splendid aggregation of the leaders in every branch of the industry, ready and willing to help you in any of your problems and difficulties;

waiting with outstretched hands to welcome you."

The foregoing quotation sums up in a brief and concise statement all that we can say to emphasize the keynote of the A. G. A.'s reason for existence and support, namely,—helpful service to its members and a keen desire for complete unity of aims and purposes in our industry.

There remain gas companies and many individuals who should be members of our national association. The medium and smaller size companies particularly need the help which this association can give. The sooner the A. G. A. represents 100 per cent. of the gas companies in the country just that much earlier will the interests of our industry be safeguarded and advanced.

### New Members Enrolled in the American Gas Association, Inc. February 10, — March 9, 1920.

#### GAS COMPANY MEMBERS

Douglas Gas Corporation.....	R. G. Arthur, Douglas, Ariz.
Hartford City Gas Light Co.....	E. E. Eysenbach, Hartford, Conn.
The Rockville-Willimantic Lighting Co.....	J. F. Ahern, Willimantic, Conn.
Gas Light Company of Augusta.....	F. L. Marshall, Augusta, Ga.
Amherst Gas Co.....	J. J. O'Connell, Amherst, Mass.
Easthampton Gas Co.....	John N. Lyman, Easthampton, Mass.
Goldsboro Gas & Fuel Co.....	B. D. Harriman, Goldsboro, N. C.
New Bern Gas & Fuel Co.....	S. W. Brown, New Bern, N. C.
Nova Scotia Tramways & Power Co. Ltd....	W. L. Weston, Halifax, N. S.

#### HOLDING COMPANIES

The C. H. Geist Co.....	H. S. Schutt, Philadelphia, Pa.
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#### MANUFACTURERS

Banner Iron Works.....	H. A. Frielingsdorf, St. Louis, Mo.
Barnett Foundry & Machine Co.....	G. Hannay, Irvington, N. J.
Hugo Manufacturing Co.....	L. F. Blyler, West Duluth, Minn.
Eph Lyon Co.....	Eph Lyon, Franklin, Pa.
Remington Typewriter Co., Inc.....	A. T. Rose, New York, N. Y.

#### Active Members

<b>CONNECTICUT</b>	
Northern Conn. Light & Power Co., Thomp-	
sonville	
Hilda D. Delaney	
F. B. Merriman	

Susanna M. Pilkington
John Anthony Ryan
Adele M. Sheridan
Louis B. Van Doren

(Continued on Page 270)

# Where Does the Small Gas Company Come In?

**Of the Gas Companies in the U. S. Who Are NOT Members  
of the A. G. A.**

40%	have annual sales of less than 10 million cubic ft !
43%	" " " " 10 to 50 " " "
16%	" " " " 50 to 500 " " "

**and only 7 non-member companies have annual sales over  
one billion cubic feet!**

**Benefits of membership by the smaller gas company are recalled to mind by the following recent statement of Mr. A. B. Morton, Rome Gas and Electric Company, N. Y. (Annual gas sales—120 million cubic feet.)**

*"The service we have received as a company member of the A. G. A. has been of real constructive assistance to us. The small independent company for whom the expert advice of a central organization is available will find membership in the National Association particularly valuable. Such has been our experience and I believe that as more smaller companies become active in Association affairs the greater will be our opportunity to be reciprocally helpful."*

**The place for the small gas company is  
within—not without—The National Association**



*Write to Association Headquarters for further details*

**130 East 15th Street, New York, N. Y.**

## Accident Prevention Committee

THE prevention of accidents due to ice or snow falling from the roofs of buildings should begin with the original design of the same. We find builders putting no gutters along the edge of the roof to catch the drippings. Instead, they extend the roof beyond the building a sufficient distance to stop any wash on the foundations.

By considering the cause of the drippings, the need of properly designed gutters and drain pipes can be seen. The average Works or Factory Buildings have roofs of slate or metal which are laid over a sub-roof of wood. The heat inside of the buildings rises and the roof absorbs it, hence, the ice and snow next to the slate is subjected to a higher temperature than the outer part and melts. This places a film of water under the bed of ice and snow. This film acts as a lubricant and as soon as the weight of the ice and snow overcome their weakened friction on the roof, it slides. If the conditions are such that the snow does not melt enough to cause a slide, the water will dribble down the roof.

In the case of the projected roof mentioned above, this water runs onto the projection and freezes, due to the fact that it is exposed to the atmosphere on both sides. This water forms a heavy bank of ice along the edge of the roof. The first warm day causes a similar action on the under side of the roof as is caused by the heat in the buildings. The result is that instead of melting and running away as water, the ice and snow fall as such.

In the case of the roof that has a very short overhang and is equipped with gutter and drain pipe which runs down the inside of the building, the water is caught in the gutter and carried away before it can freeze.

With a shingle roof, the problem is different, for the shingles offer a very irregular surface, hence a greater friction to any sliding snow, and the snow melts. It is partly broken up by the shingles and percolates down the roof.

The first move in the prevention of accidents from falling ice and snow, is that of cleaning out the gutters along the edge of the roof. This should be done every Fall as soon after the leaves have fallen as possible. This stops the gutters from becoming clogged.

There are two means of preventing accidents from snow falling off the roofs. The first is to put a man on the roof of the building to remove the snow as soon as the storm is over. The other is to provide a means of holding the snow on the roof until it melts and runs away as water.

The first method is not practical in most cases. Oftentimes roofs and copings are shoveled off for reasons other than those of accident prevention, such as weight on the roof or water backing up under the shingles.

The second method, that of holding the snow on the roof, is accomplished in several ways. Perhaps the most common is that of using rings and railings. The ring method consists of placing  $1\frac{1}{2}$ " or 2" wire rings on the roof as it is being built. These rings are fastened under the slate and placed about two feet apart and in such a manner that they offer their diameter to any sliding snow. This type holds the snow practically where it falls until it melts and runs off as water, hence the snow does not get a chance to start sliding.

The railing type consists of two bar railings made up  $\frac{1}{2}$ " or  $\frac{3}{4}$ " Round Rods and fastened to the roof by means of brackets placed on five foot centers.

(Continued on Page 264)

## ACCOUNTING SECTION

A. P. POST, Chairman

H. W. HARTMAN, Acting Secretary

A. L. TOSSELL, Vice-Chairman

### MANAGING COMMITTEE — 1920

#### At Large

ALDEN, CHARLES A., Boston, Mass.  
BRUNDAGE, H. M., New York, N. Y.  
ERICKSON, HALFORD, Louisville, Ky.  
PETTES, W. H., Newark, N. J.  
POST, A. P., Philadelphia, Pa.  
REES, RICHARD, (Mir.) Kalamazoo, Mich.  
SCHMIDT, WM., JR., Baltimore, Md.  
SCOBELL, E. C., Rochester, N. Y.  
TOSSELL, A. L., Chicago, Ill.

#### Representing Affiliated Societies

ARMSTRONG, J. J., Toronto, Can. (Canada)  
CHAPIN, C. H. B., New York, N. Y. ( Empire State  
G. & E. Ass'n.)  
EATON, H. M., Detroit, Mich. (Michigan)  
HAASE, EWALD, Milwaukee, Wisc. (Wisconsin)  
HOUGHTON, W. E., Los Angeles, Cal. (Pacific Coast)  
JAMES, F. M., Aurora, Ill. (Illinois)  
MAYNARD, H. B., Waterloo, Iowa. (Iowa)  
McCABE, J. B., Dallas, Texas. (South Central)  
NORTON, W. F., Nashua, N. H. (N. E. Gas Eng.)  
PORTER, EDW., Philadelphia, Pa. (Pennsylvania)  
POTTER, O. F., Newark, N. J. (New Jersey)  
SHEARON, B. P., Hammond, Ind. (Indiana)  
STPHART, E. C., Charleston, S. C. (Southern)

### CHAIRMEN OF SECTION COMMITTEES ORGANIZED TO DATE

**Automobile Cost Accounting**—S. J. PALMER, Chicago  
**Merchandise Accounting**—W. A. SAUER, Chicago  
**Job Order Systems**—W. G. STERRETT, Chester, Pa.  
Vice-Chairman, F. M. JAMES, Aurora, Ill.  
**Office Labor Saving Devices**—J. L. CONOVER, Newark,  
N. J.  
**Papers**—H. M. BRUNDAGE, New York, N. Y.

**State Representatives**—J. W. HEINS, Philadelphia  
**Trade Acceptances**—(Joint Com. with Mfrs.) L. F.  
MUSIL, New York, N. Y.  
**Uniform Classification of Accounts and Form of Annual  
Report to Public Service Commissions**—W. J.  
MEYERS, New York, N. Y.  
**Uniform Accounting Nomenclature**—W. H. PETTES,  
Newark, N. J.

## Standard Classification of Accounts

**A**N all-day meeting of the Committee on Standard Classification of Accounts was held at Association headquarters, February 10, at which the comments received as a result of the distribution of the Committee's tentative classification to our member companies were carefully considered. Certain changes were made in the text to conform to suggestions received and the revised classification was submitted to the Executive Board. The Board, at its meeting February 25, approved the substance of the classification presented, with authority for the Committee to use the classification as reflecting the views of the Board in conference with appropriate committees of the National Electric Light Association and the National Association of Railway and Utility Commissioners.

Arrangements are under way for a conference with the above mentioned bodies which it is hoped will result in an agreement on the uniform handling of accounting questions along lines which will be helpful to both the gas and electric utility interests and regulatory bodies involved.

#### Uniform Accounting Nomenclature

A letter was forwarded to all member companies on February 27 by the Chairman of the above committee, outlining the work of the Section in securing the adoption of a standard nomenclature for employees and also of a standard terminology for the different classes of work or duties performed by employees. This is in furtherance of the idea of a standard classification of accounts—to enable companies to make

comparisons of their results in order to secure better efficiency, and, to secure more comparable results in the information furnished by various companies in rate cases.

A tentative standard nomenclature was enclosed with the request that it be turned over to the proper member of the company for criticism and suggestion.

Additional copies of the Standard Nomenclature which accompanied the above letter are available at headquarters. As it is desired to secure the most general comment possible we trust our accounting members will write for a copy if they have not received one and give the Committee the benefit of their

viewpoint.

### State Representatives

Attention is called to the article "Collections" by Mr. W. H. German which is intended as a companion article to "Collecting Consumers' Gas and Sundry Sales Accounts" published in March. The Committee is also pleased to announce that a paper on "Machine Bookkeeping," by Mr. Wm. A. Bennett, Holyoke, Mass., will be available for publication in an early issue. Mr. Bennett's experience in this subject insures a paper of great interest to our accounting members.

Answers to Accounting problems secured through the State Representatives appear in the Question Box as usual.

## Collections

By W. H. GERMAN, Chief Clerk, Harrisburg Gas Company, Harrisburg, Pa.

**W**ITH steadily increasing costs and but few increases in rates approved, the public utilities are continuing to furnish an uninterrupted service although facing still further decreases in profits. A system that will successfully deal with the collection problem and decrease unnecessary loss, should, therefore, receive our thoughtful consideration.

The subject of collections is probably one of the most important subjects of our business and one that appeals to careful management, although it does not always receive the earnest attention that it deserves.

It is necessary with modern business methods to extend credit, more or less liberally, as may be deemed advisable by the different managements and with consideration of local conditions. The more liberal the credit given, the larger will be the increase in doubtful accounts and

the greater the need for a dependable collection system. Local conditions varying in each situation would make a standardized system almost impossible, for what would be ideal in one place, may be unsuccessful in another. Given the serious attention it deserves, however, it can be made one of the most profitable in the business.

### The Best Type of Collector

Experience shows that the collector as a direct representative of the company, and coming in daily contact with the consumer, reflects by his actions the policy of his Company. He has the possibilities to conciliate and make friendly the relations between the company and its customers. Consequently, to secure the results expected, great care should be exercised in the type of men selected for this important work. The best kind of men are those who have had a thorough knowledge of meter reading, also the



method of keeping accounts, and particularly who have the ability to deal courteously with the general public, and who try to form a personal acquaintance with as many consumers as is possible. Such type of men you will find are the successful collectors. Although this type will mean higher salaries, this will be more than offset by a decrease of Uncollectible Bills.

The bookkeeper, by keeping a close watch on the accounts and assisting the collector in following up delinquent consumers, moving from place to place, can be of considerable help in securing the required results. Every effort should be made to have bills accurately computed before serving. Inaccurate bills will soon lose to the company the confidence of the consumers and frequently the collection of the account.

#### **The Necessity for Prompt Reports**

The order clerks should be instructed to secure from the consumer as much information as possible; his full name, previous address, business engaged in, and whether he is owner or lessee. This information can be accurately recorded by the proper application forms.

Promises made to the consumer should invariably be fulfilled. If the collector cannot go himself, he should arrange for another to call for him. There is nothing that destroys the consumers' confidence and dependence in the company and its employees as much as having promises made and not carried out.

Special reports with full information in connection with large or doubtful accounts should be made, so that the office can, at once, co-operate in the collection. Prompt reports are necessary to secure full co-operation.

Request by the consumer for verification of unpaid bills can be attended to by the collector of that particular dis-

trict, who should carry with him for that purpose a small vest pocket electric lamp. By having the collector attend to this special work, it leaves the meter reader free for his regular routine work, and the collector from his general experience is better able to enter into the detail of explanation, as well as make an immediate collection.

#### **A Consumer Lost Is Profit Gone**

A system of continuous meter reading with a discount period, bills automatically falling due at the expiration of the periods, with prompt rendering of bills, enables the collector to get busy while the bills are yet "interim Sales." The use of this system in our situation results in an average of 70% of the collections being "interim." The importance of this is self evident.

The consumer should be impressed with the expectancy on the part of the Company that his payments will be made in accordance with the accepted terms. When action must be taken to enforce payment or recover the merchandise sold, it should be according to the Company's rules only, and even then, if the consumer shows an inclination to pay something, he should be encouraged. No matter how small the payment, accept it, and give him a chance. All employees should be impressed with the fact that the company is in business to sell gas and serve the community in which it operates, and that every consumer lost is just that much profit gone.

#### **The Importance of the Delinquent Collector**

The delinquent collector is one of the most responsible men in the company's employ, and, therefore, should be most carefully selected. He should have not only the qualifications of the collector, but he must be strictly dependable. The management must be able to place absolute confidence in his judgment, know-

ing that he would sooner permit a few hours of additional burning than discontinue the service and subject the Company to unnecessary trouble.

There is a class of consumers who at times become delinquent, to whom it is not policy to send a delinquent statement. These persons should be reached by special correspondence, with results generally proving satisfactory.

Under no circumstances should a collector, or any other employee be permitted to warn the consumer that his service will be discontinued on account of his delinquency. This information should be communicated on a regular form letter, and then only by mail, never by messenger. Permission should not be given for two reasons; first, it removes a source of friction between the collector and the consumer, and second, it is not a good business proposition to vest the men with such authority.

#### **Installment and Deferred Payment Plans**

In the handling of merchandise accounts, you face an entirely different proposition, not only different, but more difficult from which to secure the results that are obtainable from gas sales, since the former class of accounts are based on an entirely different basis, credit usually covering a term of months. There is always a large percentage of persons who find it comparatively easy to purchase on the installment plan, but find the making of their payments in accordance with the terms of sale not so easy or acceptable. It is a fact that there is a large percentage of persons purchasing on deferred payment plans who are unable to buy in any other way. It is this class who, to a great extent, are responsible for the difficulties that confront us in the collections of merchandise accounts. Payments will constantly be missed, due to causes beyond the control

of the collector, yet which are indisputable in the mind of the consumer. Here your credit department will prove of inestimable value in passing upon sales before the order is passed for completion.

Where billing merchandise sales is the custom, it is advisable to mail the bill the same day the completed work order reaches the office.

#### **Collecting Merchandise Accounts**

In some situations a special collector is used to collect merchandise accounts alone. I believe it to be better practice and more successful to have the regular collector handle both gas and merchandise accounts. The use of one man eliminates an annoyance of repeated calls and permits the consumer the opportunity of paying both classes of accounts at one time, which is advisable and desired.

Collecting merchandise accounts requires considerable patience, tact and judgment, frequently requiring many unsuccessful calls before a collection is made, and although you are continually impressing upon the consumer the necessity of payments in accordance with the terms of sale, you will find a large proportion who habitually, from choice or necessity, become delinquent. Payments will be continually missed and seldom caught up. Difficulty will also be experienced in collecting from users of prepayment meters. There being no bills to render with this type of meter, you will not have the opportunity to bring the consumers' attention to their delinquency as you will have to consumers with the ordinary type of meter where amounts due can be noted on the regular gas bills.

Successful results will be secured by noting on the gas bills, gas and merchandise balances, before rendering.

In some situations, where this plan is used, there is a difference of opinion when noting merchandise accounts, whether the total amount unpaid or the installment amount due should be used. With experience in both plans, I would recommend the latter, because it enables the cashier to collect larger amounts than if left for the customer to decide the amount of his payment, and it also has a tendency to keep the payments to date.

In closing accounts it is advisable to promptly mail the "final bill," so designated, rather than hold to be rendered with the current bills.

#### Periodical Meetings of Collectors

Systematic effort should be used to collect old bills before renewal of service. Calling the collectors together from time to time and carefully reviewing the uncollectible bill book, enables them to keep in touch with old accounts.

Periodical meetings of the collectors where there can be mutual exchange of ideas and advancement of suggestions should prove beneficial. Charts can be made showing each man's results with individual comparison. With proper encouragement these charts can be made the basis of friendly rivalry, which should be a wonderful stimulus to the men.

To carry any project to a successful conclusion, requires something more than ideas and system. You can systematize an idea, but unless you have that which enables you to work your system, your idea is valueless. It is so with the results you expect from collectors. The system under which they are working will be of little value, unless the men themselves are capable of producing that which is necessary to make the system efficient—PEP.

## A Subject Worth Some Thought

ONE of the subjects considered by the Accounting Section of The American Gas Association, to be of sufficient importance to merit special attention, is "Merchandise Accounting." A committee, whose membership is spread over the entire country, has been selected to give the matter close study and report its findings and recommendations at the Association convention, to be held in the fall of this year.

The subject of Merchandise Accounting is a very important one, but heretofore has been somewhat neglected as an Association topic. The purpose of this present writing is to stimulate active interest among all members of the Association concerned in the subject, to the end that the committee will feel that its efforts will be responded to and encouraged. This article can deal but briefly

with the matter, but it is hoped, in a manner, which will lead association members to realize that what may be gathered, with their help, by the committee, will ultimately result in a standardized method of Merchandise Accounting, which will be satisfactory and adaptable to all needs. The sale of merchandise by a Utility Company has for its ultimate object the utilization of the product of such company. In this respect a Utility Company's merchandizing business differs from that of the ordinary retail merchant.

The Utility Company has the advantage of the retail merchant, by having the names of all customers already on its books. This fact carefully analyzed by proper methods can be made the foundation of many successful selling campaigns. A tabulation of sales by articles

can also be made to reveal many interesting and valuable facts. An analysis of articles sold should show very readily what class of merchandise moves quickest; such information would be invaluable to the purchasing department. A proper revelation of delivery and handling costs may result in more careful pricing, or point the way to establishing economies. The same idea applies to installing and connecting costs. Selling expenses should be subdivided; and properly prorated may give a clearer idea of what is, and what is not, profitable. There are also questions of purchasing and storeroom procedure to be considered. A proper stock record will give the facts and figures. Stocks on hand will show, when compared with sales, what goods are overstocked and what are understocked.

The cost of a campaign can be kept; also selling results by individuals. The system of keeping customers' accounts is a very important one and cannot be considered too carefully; it should really be considered apart from the general subject as there are many methods and some of them have commendable features.

The matter of billing, collecting and determining credits cannot be passed over lightly, or the best of schemes will miscarry. Overhead expenses of management, advertising, rent, insurance, general handling, must be considered and properly distributed or reliable figures will not be obtained.

In other words, a scientific accounting system, properly applied, is a panacea for all the ills which the average Utility sales organization has inherited from unscientific systems, or rule of thumb procedure.

Systematization and accounting can be utilized to advantage just as well in a

small company as in a large one, and are just as effective in a company selling gas only, as in one selling both gas and electricity.

To accomplish the result desired by the Committee many systems must be studied, separately and collectively.

Observation of various systems and criticisms from many quarters indicate that this field is a fertile one, but requires much cultivation. A great deal can be done to improve methods. The business of today will no longer tolerate opinions formed on "hunches," instinct or snap judgments, and there is no reason why such methods should continue when actual basic figures and graphic displays can be made available as the foundation for a simple but scientific system for merchandise accounting.

This preamble is merely a bid for all members of the Association interested in Merchandise Accounting to get in touch with any of the following gentlemen, members of this committee; outline briefly your system of Merchandise Accounting, and give your opinions and desires on the subject.

- W. A. Sauer, Peoples Gas Light & Coke Co.,  
122 S. Michigan Ave., Chicago, Ill.
- A. C. Winters, Peoples Gas Bldg.,  
Chicago, Ill. (Office Wm. A. Baehr).
- H. C. Morley, Consumers Gas Co.,  
Toronto, Ontario, Canada.
- F. R. Cutcheon, Gas Co.,  
Long Branch, N. J.
- T. W. Gregory, East St. Louis Light &  
Power Co., East St. Louis, Ill.
- R. Shacklette, Big Rapids Gas Co.,  
Big Rapids, Mich.
- J. E. Kane, Cons. Gas, Electric Light &  
Power Co., Baltimore, Maryland.
- John D. Killoren, Laclede Gas Light Co.,  
St. Louis, Mo.
- J. L. Conover, Public Service Gas Co.,  
80 Park Pl., Newark, N. J.
- H. E. Goheen, Northern Indiana Gas & Elec-  
tric Co., Lafayette, Ind.

(Continued on page 275)

## ADVERTISING SECTION

GEORGE WILLIAMS, Chairman

HERBERT K. DODSON, Vice-Chairman

CHAS. W. PERSON, Secretary

### MANAGING COMMITTEE

#### At Large

BRILL, A. P., Pittsburgh, Pa.  
CLARK, WM. J., Mt. Vernon, N. Y.  
COLLINS, D. J., Philadelphia, Pa.  
DODSON, HERBERT K., Baltimore, Md.  
GOULD, WM., Boston, Mass.  
HANLAN, JAMES P., Newark, N. J.  
MULLANEY, B. J., Chicago, Ill.  
PRATT, T. B., New York, N. Y.  
ROBBINS, M. C., New York, N. Y.  
ROPER, GEO. D., Rockford, Ill.  
RUTLEDGE, F. J., Philadelphia, Pa.  
WILLIAMS, GEORGE, New York, N. Y.

#### Representing Affiliated Societies

ALLEN, GEO. W., Toronto, Can. (Canadian)  
AUSTIN, E. E., Sumter, S. C. (Southern)  
FRANKLIN, S. J., Millville, N. J. (New Jersey)  
FUGATE, FRANK, Detroit, Mich. (Michigan)  
HIGGINS, A. A., Providence, R. I. (New England)  
JASPERSON, R. O., Chicago, Ill. (Wisconsin)  
LESTER, F. M., Chicago, Ill. (Illinois)  
MANTLE, G. D., Oakland, Cal. (Pacific Coast)  
MARTIN, E. H., Des Moines, Ia. (Iowa District)  
MULHOLLAND, S. E., Fort Wayne, Ind. (Indiana)  
RALSTON, R. J., Philadelphia, Pa. (Pennsylvania)

### CHAIRMEN OF SECTION COMMITTEES ORGANIZED TO DATE

Plan and Scope—M. C. ROBBINS, New York, N. Y.

## The "Good Will" Advertising Campaign

EVERY gas company member of the Association is aware of the fact by this time that the Advertising Section is living up to its title and is actually in the advertising business. At this writing, orders for the series of "good will" advertisements are coming into Headquarters from all parts of the country and the companies using them are giving their wholehearted support to the campaign.

Some companies, prompted by an unselfish interest, are using the advertisements for national effect. They know that if there ever was a time when the gas industry needed to put its problems before the American people that time is now. Other companies are using them for local effect, and since the text of each advertisement can be changed to fit local conditions, they are making the most of this opportunity.

#### A National Advertising Campaign

Not a dozen companies have advised the Association that they can not use

the series and the members of the Plan and Scope Committee, which has this work very much at heart and expects big things from it, believe that the campaign will grow in popularity until it takes on a national importance.

The method of using the series is even more flexible than announced by special form letter and in these pages last month. Beginning with the second advertisement of the series, which appears elsewhere in this section, it will be possible for companies to order matrices and electrotypes in three sizes: two-column, three-column and four-column newspaper width. The cost of the matrices will be the same as announced originally, \$3.00 for each matrix. The cost of the electrotypes will be \$4.00 for each advertisement in any one of the three sizes.

#### Advertising In Three Sizes

The addition to the three and four-column size of the two-column size is made at the request of a number of companies who can not afford the larger



sizes but who want to use the series. It should be borne in mind, however, by other companies who may contemplate the use of the two-column size that in a campaign of this character it is always advisable to use the largest advertisement possible. The newspapers are full of various kinds of "good will" advertising these days and for the most part the advertisements are all three and four-columns wide. On the other hand, it is better to use the two-column advertisement than to ignore the series altogether. We want every gas company member of the Association to support us in this work and whether the order is for a small or a large size advertisement, the publication of the series is sure to bring about better relations with the public.

So far as is possible the art design, border and type style will be standardized throughout the series. The purpose of this is to enable the public, at a single glance, to identify the advertisements with the gas business. Once the matrices have been used for one newspaper impression, they can be used again, with careful handling, for a second impression and perhaps for a third. The usefulness of an electrotpe has no limits. It may be used over and over again as often as the company wishes.

#### **Start the Series Now**

Company members who have not sent in their orders for the series should do so immediately. Start with the second advertisement, "Gas—A Necessity," and insert it in as many newspapers in your town as you can afford. Follow it with the third and so on until you have used the entire series.

The advertisements are to be published according to a fixed schedule. The time for the publication of the second adver-

tisement is from April 5 to 19. You have only a few days to act if you have not already done so. Let us have your order at once.

#### **The Need for An Exchange of Advertising Ideas**

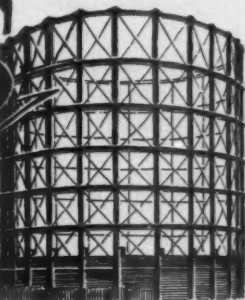
In his interesting paper on "Advertising" read before the recent meeting of the New England Association of Gas Engineers, Arthur A. Higgins, of the Providence Gas Company, pleaded for a better exchange of advertising ideas among gas men.

"If everyone knew as much about the gas business as we do," said Mr. Higgins, "the output of our various plants would be multiplied several times, and it is through lack of this knowledge reaching the public that our business is no larger than it is. So it becomes the duty of the commercial manager and the advertising writer to learn more about our business and to teach it to our customers. Publicity and salesmanship alone can accomplish this.

"We need better exchange of advertising ideas among gas men and this is coming through the advertising section of the American Gas Association who have started in this direction and I cannot too strongly appeal to you for co-operation in this work. They request that you send them copies of your advertisements and they in return will send you copies from other gas men. I am glad to say that the gas industry is like a large family, and that a spirit of helpfulness to each other prevails among gas companies, and it is one of the hopeful things of the industry that no attempt at concealment from each other is known in our trade. There is no doubt that with more and more co-operation and helpfulness, our industry will go on to greater and greater accomplishments, that the public may be better served."

What  
Would  
Happen?

# GAS



## a Necessity

Oil and bituminous coal are the two chief items of raw materials used in the manufacture of artificial gas.

Suppose they should cost so much that 1,166 artificial gas companies in the United States could no longer operate without huge losses.

Suppose these companies were forced to close down their plants and to shut off the supply of gas for even a single day.

What would happen?

Immediately the lives of more than fifty million persons in America who depend upon gas for cooking, heating, lighting, and industrial purposes would be vitally affected.

Their homes would be darkened at night. Their meals would be served uncooked or cold. Their rooms would be cheerless.

The bath would become an icy plunge. Laundry and kitchen work would be drudgery. And outside the home thousands of big industrial plants would be crippled.

Weigh these facts carefully and you will realize what a tremendous part artificial gas plays in modern civilization.

It is the very life blood of 4,600 of our most prosperous cities, towns and villages.

*It is a necessity!*

(Insert the name of your Company here)

MEMBER OF THE AMERICAN GAS ASSOCIATION



Second of a series of twelve "good will" advertisements especially prepared for member companies. Price of series complete with matrices in two, three or four-column newspaper width, \$36.00. Price of electrotypes, same sizes, \$48.00. Order immediately.

### **"Service" Advertisements Valueless Unless Company Backs Up Every Printed Word**

"How to get publicity—the right kind—is the problem many companies are trying to answer," says Edward R. Kelsey, advertising manager of the Toledo Railways & Light Company. "Many wait too long, until just before they have some favor to ask of their patrons, and then have an idea that in the short space of a few weeks by a few cleverly worded Publicity Talks they can fool the people into believing they are the kind of folks they said they were.

"Many make the mistake of running some carefully prepared Service Talks, only to prove a boomerang because the next day a patron on calling on the company receives a curt word from the 'phone operator, or on going to the application department is made to feel that the company is doing him a great favor by accepting his business, when it should be the other way.

"The public sees little of the officials, but does see daily the employees out over the property or in the sales room, and all the Publicity Talks in the world on Service will avail nothing if the policy prevailing in the company from the top down does not back up every portion of the printed word.

"Barnum methods in advertising might have done in the days when you could make folks believe elephants were white, but today the watchword of all advertising, of all publicity campaigns, is truth and sincerity."

### **Ask Yourself These Questions**

When you have written an advertisement, read it over again, and then ask yourself:

Is it true?

Does it ring with sincerity?

Is the language too flowery?

Is it grammatical?

Is the wording as simple and direct as it should be?

Does each word best express the meaning you want to convey?

Can any part of your text be misunderstood?

Are the punctuation and spelling correct?

Is there too much copy for the space?

Will your text of twenty-five words or fewer make the reader think of a hundred?

Does the illustration link up with the text?

Does it tell a story?

Does your "ad" as a whole have the atmosphere of the goods advertised?

Will it get your message across?

In gauging the sales value of your text have you put yourself in the reader's place?

—Publicity.

### **Do Your Employees Read Your "Good Will" Advertisements?**

Hung in conspicuous places in the offices, shops and works of the Northern Indiana Gas and Electric Company is the advertisement reproduced on the accompanying page. Mr. S. E. Mulholland, vice-president of the company, believes that a good will advertisement is only half an advertisement if it is not read by the employees of a company as well as by the public.

Once each month the advertisement appears in the newspapers of Fort Wayne, Bluffton, Decatur, Peru, Wabash, Logansport, Lafayette, Frankfort, Lebanon and Crawfordsville and then it is framed and placed so that it can be read by the company's employees. Mr. Mulholland says that although the idea of the advertisement is not original with him, its application may be of use to others in the industry. That is why we are passing it on to you.

# The Public is Entitled to Courteous Treatment and the best possible service at all times

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## To The Public

You are entitled to good service and we want you to have it.

Please do us the favor of selecting our office as the proper place to register complaints.

We are always ready and anxious to investigate any and all complaints and to rectify errors.

No individual or company can always be perfect. We invite your help and ask your cooperation in bettering our service.

It is our hope and desire that our relations may be uniformly cordial and pleasant. Please tell us your troubles and we will gladly do our part toward remedying any difficulty. Your criticism and complaints are invited at all times and any employee in any department who fails to welcome same and do his utmost to furnish you good service and rectify errors, is not rightly representing this company and its policy towards the public.

## To Our Employees

The Company's reputation is in your hands.

Never attempt to take advantage of a patron.

The Company wants no revenue it does not earn.

Remember that you are in the service of the public as well as the Company.

This Company recognizes its obligations to the public and the conduct of each individual employee should so demonstrate.

Courtesy is the most valuable asset that an employee of the Company can possess. The best efforts of the Company to please its patrons are sometimes offset by the thoughtlessness of an employee who may fail to remember that any act of his which develops ill-feeling reacts upon the Company and upon his fellow employees.

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## Northern Indiana Gas and Electric Co.

*This advertisement is framed and hung in conspicuous places in the company's offices, shops and works. Why not do the same with your advertisements?*

**Far Reaching Effect of Advertising**

Commenting editorially on the paper "Advertising" read by A. A. Higgins of the Providence Gas Company before the recent meeting in Boston of the New England Association of Gas Engineers, the *Terre Haute (Indiana) Star* says:

At a meeting of New England Gas Engineers in Boston last week, one member of the organization delivered an address on the benefits of advertising which brought about an approving discussion from the floor. Now to the average person it would seem that if there is any business that does not require to be advertised it is the gas industry. Gas is used for illumination and for fuel. Everybody understands this and is also acquainted with the advantages of its light over that of candles and lamps and of its superior convenience as fuel. If it is accessible and they can afford it, they use it for these purposes without need of advice—so they say. Then why, they ask, should an obviously useful commodity need special publicity?

It does not occur to them that perhaps they need to have it proved to them that they can afford the use of gas, for example through having demonstrated to

them the economical qualities of certain appliances such as gas ranges. The speaker in question knew the advantage of this and told of one large gas company that is selling a certain variety of kitchen range as the result of an advertisement read by a man fifteen years ago. He was so well pleased with it that he sounded its praises and his name is still used by new customers calling for that make of range.

The point was further made that the results of advertising are not easily measured as they are apt to vibrate through the years. This, said the speaker, is why it pays to be a little more than fair with a customer as it is in this manner that business grows. "Send your customer home with a smile; it will pay you in good dividends in the good will ledger." The moral of this, of course, is the importance of living up to the advertisements, for where this is not done the customer soon becomes dissatisfied, loses faith in the printed promises, and the value of the advertisement is lost. Advertising and salesmanship go together as parts of the same system and must be harmonious to be fully effective. The one must not promise what the other can not perform.

## Right

"I don't believe you men have told the facts of your business in one and two syllable words to the public. Everybody believes, for instance, that the gas companies make a lot of money. You and I know that the gas companies and all the public utilities have been fighting for their lives during this period of increased cost."—*Hon. Ole Hanson.*



## COMMERCIAL SECTION

C. A. MUNROE, Chairman

LOUIS STOTZ, Secretary

J. P. HANLAN, Vice-Chairman

### MANAGING COMMITTEE — 1920

#### At Large

BARROWS, GEO. S., Providence, R. I.  
BARTLETT, C. E., (Mfr.) Philadelphia, Pa.  
BENNETT, GEO. E., New York, N. Y.  
BOND, C. O., Philadelphia, Pa.  
BUCKMINSTER, ROLLIN, Pawtucket, R. I.  
HURNS, J. J., St. Louis, Mo.  
CHRISTMAN, H. S., Philadelphia, Pa.  
CLARK, H. H., Chicago, Ill.  
CLARK, W. J., Mt. Vernon, N. Y.  
DAVIES, J. E., Chicago, Ill.  
DODSON, H. K., Baltimore, Md.  
DOULL, R. S., New York, N. Y.  
ELSMAN, RALPH, Brooklyn, N. Y.  
GASTON, LUTHER, Spokane, Wash.  
GOULD, WM., Boston, Mass.  
HUNTER, HARRY W., (Mfr.) Baltimore, Md.  
JARDINE, BERT H., Knoxville, Tenn.  
JANPERSON, R. O., Chicago, Ill.  
KARSHNER, G. M., New York, N. Y.  
KING, THOMSON, Baltimore, Md.  
KNAPP, F. H., (Mfr.) Pittsburgh, Pa.  
LOEBELL, H. O., New York, N. Y.  
MACSWEENEY, J. P., Rochester, N. Y.

MAXON, H. R., (Mfr.) Muncie, Ind.  
MUNROE, C. A., Chicago, Ill.  
MYERS, J. B., Philadelphia, Pa.  
PEFFLY, I. W., (Mfr.) New York, N. Y.  
PETTINGILL, H. J., Jr., Woonsocket, R. I.  
PISER, THEO. H., Boston, Mass.  
POST, A. P., Philadelphia, Pa.  
RASCH, W. T., New York, N. Y.  
STANNARD, CLARE N., Denver, Colo.  
TRUMBULL, G. R., New York, N. Y.  
VINCENT, G. I., Syracuse, N. Y.  
WRIGHTINGTON, E. N., Boston, Mass.

#### Representing Affiliated Societies

BARTON, WM. H., Portland, Ore. (Pacific Coast)  
BORDEN, A. W., Hastings, Nebr. (Iowa Dist.)  
BOWLIN, M. A., Macon, Ga. (Southern)  
BRANDES, JEROME, Chester, Pa. (Pennsylvania)  
BURKE, E. J., Indianapolis, Ind. (Indiana)  
CHAMBERLAIN, C. R., Grand Rapids, Mich. (Michigan)  
CRAFTS, H. C., Pittsfield, Mass. (N. E. Gas Eng.)  
FLAUT, J. J., New Orleans, La. (South Central)  
HANLAN, J. P., Newark, N. J. (New Jersey)  
MCINTYRE, W. H., Ont., Can. (Canada)  
ST. JOHN, JOHN, Madison, Wisc. (Wisconsin)

### CHAIRMEN OF SECTION COMMITTEES ORGANIZED TO DATE

**Sales Development**—WM. GOULD, Boston, Mass.  
**Compensation** (Sub)—G. M. KARSHNER, New York, N. Y.  
**Filling in the Valleys in Gas and Appliance Sales** (Sub)—  
WM. GOULD, Boston, Mass.  
**Maintenance** (Sub)—ROLLIN BUCKMINSTER, Pawtucket,  
R. I.  
**Putting Non-Profitable Consumers on a Profitable Basis**  
(Sub)—B. H. JARDINE, Knoxville, Tenn.  
**Sales Campaigns** (Sub)—H. J. PETTINGILL, Jr., Woon-  
socket, R. I.  
**Work Schedule** (Sub)—G. I. VINCENT, Syracuse, N. Y.  
**Gas Lighting**—THEO. H. PISER, Boston, Mass.

**Heating**—GEO. E. BENNETT, New York, N. Y.  
**Industrial Fuel Sales**—H. H. CLARK, Chicago, Ill.  
**Furnace Performance Standards** (Sub)—I. LUNDJAARD,  
Rochester, N. Y.  
**Improvement of Atmospheric Burners** (Sub)—JEROME  
BRANDES, Chester, Pa.  
**Proportional Mixing** (Sub)—CHAS. C. KRAUSSE, Balti-  
more, Md.  
**Recuperation and Regeneration** (Sub)—H. O. LOEBELL,  
New York, N. Y.

## Systematic Sales Activities

THE Sales Campaign Committee for 1920 recently held a meeting at the office of the chairman and decided that one of its most important functions was to urge the adoption by member companies of the "Sales Schedule" as recommended in the report of the 1919 committee. The real "meat" of this most important report is presented here in thirty-one short and to the point paragraphs. You can read them in a very few minutes and they are well worth your time. If you are conducting Sales Campaigns now, adopt the Association Schedule so far as possible. Remember that the "leader" for the first week in the month should have the most important consideration. The features of the additional weeks being supplementary are suggested for those companies large enough to feature four activities each month. If you are not running Special Sales regularly, the Committee urges that you start at once, and adopt as much of the Association Schedule as you are able.

The Sales Campaigns Committee's slogan is "at your Service". Call upon them for any assistance you may want.

The prime object of special sales campaigns is to stimulate activities, to arouse the interest of our customers, and to bring our goods forcefully to their attention.

A successful sales campaign requires organized, concerted action.

It must be well planned and heartily supported by interrelated departments.

Special sales campaigns should rightfully be divided into two classes; those conducted on the sales floor and those conducted by the Company's representatives calling from house to house.

It is easy enough to follow the road that offers least resistance and pick the fruit within easy reach, but continued drives and strenuous efforts through special sales campaigns prove of inestimable value.

Special sales campaigns should enable us to keep before our customers not only the varied line of appliances that a gas company carries, but the use, constant and general, of these appliances.

The "hit and miss" methods of former years should be abolished, specific dates should be established for the inauguration of definite sales plans, and such plans should be prepared well in advance of their development.

Designate periods throughout the year in which to specialize on certain gas appliances.

One week (rather than a full month) would tend more to the success of such a plan, (specializing on one appliance) for then full concentration could be placed on the "leader" offered for that period and the remainder of the month could be devoted to other activities.

The following schedule of special sales weeks is recommended for adoption by the Association, and suggestions are made for sales floor, advertising and window trim activities for other weeks during the year.

It would be difficult to plan a schedule that would be acceptable to all members of our Association, because of the non-uniformity of the conditions in different sections of the country.

The "Special Sales Week Schedule" is recommended for the concerted action of the entire gas fraternity, and to form a nucleus for additional activities.

## Sales Schedule For Twelve Months

### Recommendations for special sales weeks

1st week—**CLEARANCE SALE**

2nd week—

3rd week—

4th week—

1st week—**GAS ROOM HEATERS** (Also Sept.)

2nd week—

3rd week—

4th week—

1st week—**GAS RANGES**

2nd week—

3rd week—

4th week—

1st week—**GAS WATER HEATERS** (Also July)

2nd week—

3rd week—

4th week—

### Suggestions for activities for other weeks during the year

#### January

Baking demonstrations—Bread

Baking demonstrations—Pies

Baking demonstrations—Cakes

#### February

Architects', Contractors', and Builders' Exhibition

Cake griddles

Stove oil or Rustoff

#### March

Broiling

Convenience of hot water

Hygiene of hot water

#### April

Boiling

Waffle irons

Comparative cost of gas, coal and other fuels

*May*

1st week—**ALL GAS KITCHENS—RANGE,  
WATER HEATER, ROOM  
HEATER, Etc.**

2nd week—

Cooking utensils

3rd week—

Oven dinner cooking

4th week—

Gifts for the June bride

*June*

1st week—**MODERN LAUNDRIES — GAS  
IRONS, MANGLES, LAUNDRY  
STOVES, CLOTHES WASHERS,  
AND DRYERS**

2nd week—

Boiling clothes

3rd week—

How to care for the water heater

4th week—

Preserving and canning demonstrations

*July*

1st week—**GAS WATER HEATERS (Also  
April)**

2nd week—

Three-piece set saucepans

3rd week—

How to care for the gas range

4th week—

Sad iron heaters

*August*

1st week—**GAS STOVE LIGHTERS**

2nd week—

Solid top to gas range

3rd week—

Toasters

4th week—

Fire place gas heaters

*September*

1st week—**GAS ROOM HEATERS (Also Feb.)**

2nd week—

Reasons for variations in customers' gas consumption at different seasons of the year

3rd week—

Housepiping

4th week—

Lamp shades and reflectors

*October*

1st week—**GAS LIGHTING**

2nd week—

How to care for gas lamps

3rd week—

Commercial gas lighting

4th week—

Gas table lamps

*November*

1st week—**GAS LIGHTING FIXTURES**

2nd week—

Store lighting

3rd week—**CHRISTMAS GIFTS**

4th week—

Christmas gifts

*December*

1st week—

Christmas gifts

2nd week—

Christmas gifts

3rd week—

Christmas gifts

For the four odd weeks in the year

**SERVICE**

(See next two pages for window display suggestions)

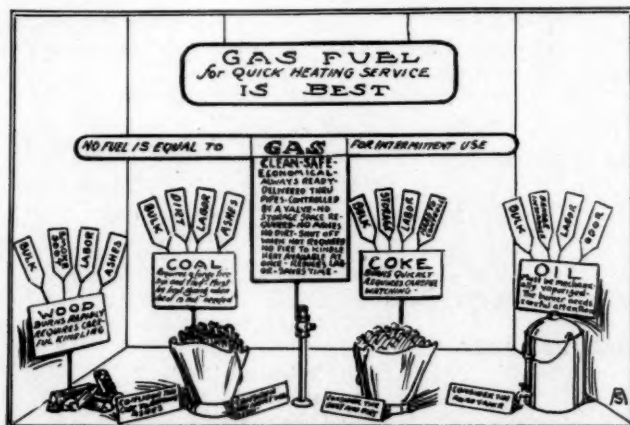
## Window Displays and Publicity Material to Fit Sales Schedule

## The Twelve Months' Sales Schedule

**Display for Third Week in April**

13a

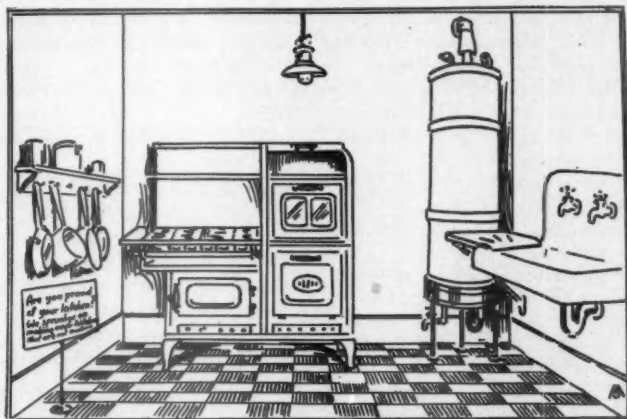
A live demonstration in the window during this third week in April will not only attract attention to the gas office but will create sales of waffle bakers that would otherwise be neglected. The accessory business should not be ignored and the time to go after it is now. It will put enthusiasm in your office sales force and will build up business in other lines.



### Display for Fourth Week in April

136

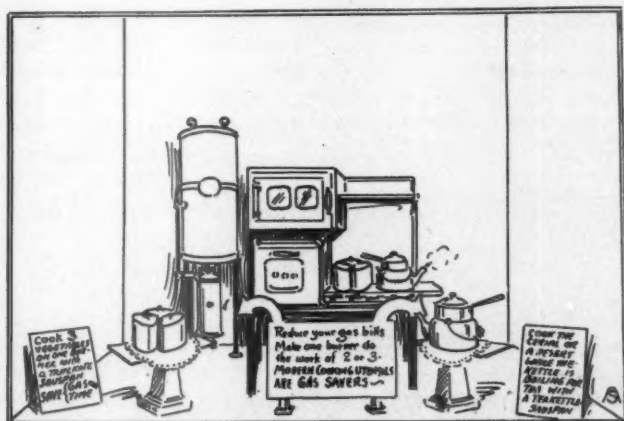
Wood, coal, coke and oil are shown in this display and a gas pipe is affixed to the floor and to it is attached the main sales talk. Particular care should be taken to arrange the cards so that they will give an orderly and effective appearance and a crowded or stuffy window should be avoided. The arrow cards are held in place by wires.



Display for First Week in May

13c

This display is given over to the gas range. A fine type of range is shown with a modern type of automatic water heater and a kitchen light. The enameled sink, drain board, utensils and hangers and the tiled patterned floor covering lend distinction to the display. Lettering on the show card shown at the left should be large and clear.



Display for Second Week in May

13d

There are any number of gas-saving cooking utensils on the market that should be advocated by gas companies. In this display the triplicate saucepan and the double tea-kettle boiler are featured in a way that should result in better sales for both of these articles. It is important, however, that the gas range and water heater occupy prominent positions.



The plan of special sales weeks should have the co-operation and support of the advertising, window display and manufacturers' sections of the American Gas Association.

If the manufacturers will exert unusual efforts during the week when their product is being presented in a nation wide campaign, they will aid the cause considerably.

The trade journals can co-operate by publishing each month ways and means for conducting the special sales week scheduled for the subsequent month.

The wide possibilities of a street or house to house canvass must not be lost sight of.

A gas company should employ three classes of salesmen; the store, the district, and the special house to house salesman.

The floor and the district salesmen should be sufficiently capable to handle the entire line of gas appliances.

The man who goes from house to house should sell one article only—an article that he can carry with him and demonstrate on the premises at the time the call is made.

His success depends upon concentration. If permitted to sell more than one article, his selling ability is seriously handicapped.

If a special house to house campaign is to be run, the campaign should begin with the store sales campaign, so that it will receive a good send-off through the wide publicity and advertising which is being given the article through the store campaign.

When a complete canvass has been made for that one article, then another campaign by the same sales crew on a different device may begin.

The "no money down" policy has in many instances greatly increased the sale of appliances.

Deferred payments cannot be too strongly emphasized as a means of stimulating sales. Monthly charges for merchandise can readily be made on gas bills.

Extra commissions to the salesmen are also effective.

Cutting prices during a sale should not be encouraged.

Wide publicity and strong, attractive advertising should be the key note.

In all special sales campaigns, however, we should be guided by the fact that we are not in business solely for the profit which we make on the sale, but also for the service which we are rendering.

Your Committee is confident that if the recommendations made in this paper are given serious consideration, they will prove a great aid in accomplishing increased sales and providing good and efficient service to your customers.

It is hoped that the plan of special sales weeks will be adopted by our Association, that it will become a standard practice for future years, and that the full support and hearty co-operation of the entire gas industry will be exerted towards this goal.

The 1920 Sales Campaign Committee is composed of H. J. Pettengill, Jr., Woonsocket, R. I., chairman, and Messrs. Cyrus Barnes, Boston; J. J. Burns, St. Louis; B. A. Duvall, Baltimore; James P. Hanlan, Newark; A. A. Higgins, Providence; J. P. MacSweeney, Rochester; W. A. Morris, Brooklyn, and F. A. Woodhead, Arlington, Mass.

### Sales Campaigns Committee Needs Information

The answers to the following questions will enable the Committee to proceed with its plans to stimulate sales effort and offer member companies some definite suggestions and sales helps.

1. Have you conducted Campaigns in the past? .....
2. From your viewpoint, were these Campaigns successful? .....

3. Why? .....
4. Are you willing to adopt a Sales Campaign program throughout the year? .....
5. Is the Association Schedule of Sales Campaigns applicable to your local conditions? .....
6. If not, what suggestions have you to offer? .....
7. In what way can the Sales Campaigns Committee assist you?.....

## Higher Salaries for Gas Company Salesmen and a Need for Better Sales Representatives

THE sub-committee on Compensation of Salesmen is making a study of the various systems in use by gas companies for paying their district and floor salesmen. As a result of this investigation the committee will prepare and publish in the "A. G. A. MONTHLY" three plans, each embodying the best features of all the systems now in use.

The committee is firmly of the belief that the gas industry must appreciate the need of employing a higher grade of salesmen; to accomplish this it will be necessary to pay these men on a basis which will attract and hold them in our business.

The practice of gauging the compensation of a gas salesman in one gas company by what is paid in some other gas company does not appeal to the

committee as a proper basis to work on; instead the comparison should be made with what salesmen earn in other lines of business.

The purpose of the committee in asking the following questions is to determine what systems of payment are most generally in use by gas companies and which are securing the best results.

As the replies received will materially assist the committee in preparing the three plans mentioned, our members are requested to supply the information asked for at an early date.

In sending in answers, which should be addressed to the American Gas Association, 130 E. 15th St., N. Y. C., it is not necessary to repeat the question—simply state the question number and follow with the answer.

1. Do you pay your district salesmen straight salary, salary plus commission, straight commission or on some point or bonus system? (Answers to this question should be in full detail.)
2. Have you previously used a system of payment which did not meet your requirements? If so, give details of the system, with reasons why it was discarded.
3. Explain in detail your system of paying floor salesmen, whether on a straight salary, salary plus regular commission or salary plus commission on specials which it is desired to push at various times. Please give your opinion of your present system as to results. If you pay a straight salary, give your opinion as to whether some sort of bonus would not increase your floor sales, especially considering the relationship between floor and district salesmen. A certain relationship exists in that the floor salesman talks to a great many people whose names are turned over as prospects to district salesmen when it is impossible to make a sale on the floor. Should the floor salesmen receive part credit on leads thus furnished to district salesmen?
4. Do you allow your district salesmen full or part credit for (a) office sales, (b) for sales made on the floor resulting from prospects turned in by the salesmen, or (c) sales made on the district by the district salesmen on leads received through the mail, on the display floor or from other departments of the company.
5. Is the district salesman paid on the basis of orders turned in or on completion of work orders? If deductions are made due to cancellations, how is this handled?
6. Does your district salesman take applications for meters and services, succession applications, complaint orders, follow up complaints, high bills, etc.? If he does do such work, does your system provide for his being compensated for attention to such matters?
7. Does your system of payment to salesmen require much clerical work? Describe how your records are kept in this connection. How many clerks are required to take care of the number of salesmen employed by you, considering only the work incidental to the handling of the salesmen's orders and the checking up of their work, the keeping of prospect cards, the compilation of his reports and the making up of his salary account?

8. Do you believe that any man in the selling line, whether he be the sales manager or the district or floor salesman, would do more effective work if he were on some other system of payment than a straight salary?
9. Do you believe that the salesman in a gas company organization should be better paid than any other class of employee in the organization, taking into consideration the following factors: 1st, that a salesman's present and future are in the amount of goods that he sells; 2nd, that generally speaking, his efficiency after a certain period will decrease with age and because he has both mental and physical work to do and he will not last as long as a man who has either only mental work to do or only physical work to do; also, a salesman has to use the maximum amount of energy at all times, to be a successful salesman; 3rd, that most promotions are made to the higher positions in the gas industry to engineers, accountants, bookkeepers, etc., outside of the selling organization.
10. What is the average salary earned by (a) district salesmen, (b) floor salesmen?
11. If your salesmen do not, under your system, bring in enough business to pay their way, are they given employment in another department or allowed to go?

### **Work Schedule Committee Will Soon Submit Its Plan**

The sub-committee on Work Schedule has been organized with the following members: G. I. Vincent, chairman, and Messrs. G. T. Macbeth, J. M. Roberts, W. G. Sterrett, John L. Tudbury, and L. B. Wilson, Jr.

The Committee is already well advanced in the preparation of a schedule showing the time period which should elapse between the time of taking an order and the time of beginning the physical work on all classes of orders

Work schedules, when taken in connection with all the other activities of a utility which touch directly or indirectly on the consumers' service, are very valuable in developing good will for the company and enabling the company to secure better prices for the service rendered.

As soon as the preliminary report is ready, copies will be sent to member companies for criticism and suggestion and the final report will then be made available to our membership.

### **Maintenance Committee at Work**

The Sub-committee of the Commercial Section on "Maintenance" submits the following six questions with a request that they be answered promptly by all member companies.

1. Do you provide maintenance on domestic lights and appliances?  
(Either separate or collectively.)
2. If so, is it continuous throughout the year or by request only? Is labor free or charge made? State in as few words as possible the general plan followed.
3. What are your total gross sales (1919) of all domestic lights, burners, mantles and fixtures?
4. Do you provide maintenance on commercial lighting fixtures?
5. If so, what is your scale of rates?
6. Do you have any other form of maintenance service?  
(Either lighting or household appliances.)

Note: In answering, the question need not be repeated; simply give the question number followed by your answer.

## MANUFACTURERS SECTION

W. GRIFFIN GRIBBEL, Chairman

GEORGE S. BARROWS, Vice-Chairman

W. W. BARNES, Secretary

### MANAGING COMMITTEE — 1920

#### At Large

BARNES, W. W., New York, N. Y.  
BARROWS, GEORGE S., Providence, R. I.  
BRILL, A. F., Pittsburgh, Pa.  
BRUCE, HOWARD, Baltimore, Md.  
COLLINS, D. J., Philadelphia, Pa.  
CONROY, J. P., New York, N. Y.  
CRANE, WM. M., New York, N. Y.  
DEHART, J. S., Newark, N. J.  
GRIBBEL, W. GRIFFIN, Philadelphia, Pa.  
HUTCHINSON, W. G., Bridgeport, Conn.  
LOHMEYER, H. B., New York, N. Y.  
MASON, SIDNEY, Gloucester, N. J.  
NORTON, HARRY A., Boston, Mass.  
PEFFLY, IRVING W., New York, N. Y.  
REES, RICHARD, Kalamazoo, Mich.  
ROBERTS, EARL W., Detroit, Mich.

ROPER, GEO. D., Rockford, Ill.  
SCHALL, H. D., Detroit, Mich.  
STITES, TOWNSEND, Gloucester, N. J.  
WICKHAM, LEIGH, St. Louis, Mo.

#### Representing Affiliated Societies

BABCOCK, C. B., San Francisco, Cal. (Pacific Coast)  
BARTLETT, C. E., Philadelphia, Pa. (Pennsylvania)  
CHAPIN, C. H. B., New York, (Empire State)  
ECCLES, GEO. W., Waltham, Mass. (N. E. Gas Eng.)  
GIBSON, W. R., Toronto, Can. (Canadian)  
LONG, H. J., New Brunswick, N. J. (New Jersey)  
MCCULLOUGH, CHAS., Milwaukee, Wis. (Wisconsin)  
MILLER, THOS. D., Detroit, Mich. (Illinois)  
SEIDENGLANZ, C. H., Dallas, Texas. (So. Central)  
SCHALL, H. D., Detroit, Mich. (Michigan)  
WARREN, W. M., St. Louis, Mo. (Iowa Dist.)  
WESTON, J. A., Lansing, Mich. (Indiana)

### CHAIRMEN OF SECTION COMMITTEES ORGANIZED TO DATE

**Membership**—WM. M. CRANE, New York, N. Y.  
**Apparatus Makers**—D. J. COLLINS, Philadelphia, Pa.  
**Nomination**—WM. M. CRANE, New York, N. Y.

**Exhibition**—W. GRIFFIN GRIBBEL, Philadelphia, Pa.  
**Trade Acceptances** (Joint Com. with Acc. Sect.)—GEO.  
H. WARNER, New York, N. Y.

"Success waits upon ability and loyalty, Let's go!"—Geo. B. Corte-you



The Seal of

#### STANDARD PRODUCT AND ASSOCIATION SUPPORT

All company members, Manufacturers Section, are urged to use the above emblem on all stationery, catalogues and literature as company members of this Association.

## Committee on Illustrated Lectures at State and District Gas Association Meetings

GEORGE S. BARROWS, Chairman

### Divisions

Division of Meter Manufacturers,  
Donald McDonald, Chairman, W. P.  
Hutchinson, Vice-Chairman.

Division of Gas Range Manufacturers,  
Wm. M. Crane, Chairman, I. W. Peffly,  
Vice-Chairman.

Division of Water Heater Manufacturers,  
H. J. Long, Chairman.

Division of Office Labor Saving Devices Manufacturers, H. B. Lohmeyer,  
Chairman, E. J. Ferris, Vice-Chairman.

Division of Heating Appliance Manufacturers, Geo. S. Barrows, Temporary  
Chairman.

Division of Industrial Appliance Manufacturers, S. Tully Willson, Temp-

orary Chairman.

Division of Lighting Appliance Manufacturers, J. P. Conroy, Temporary Chairman.

Division of Apparatus & Works Manufacturers, J. S. DeHart, Jr., Temporary Chairman.

Division of Supply Manufacturers, R. Mueller, Temporary Chairman.

Division of Accessories Manufacturers, B. Ryan, Temporary Chairman.

### Sectional Activities

The suggestion of grouping manufacturers into divisions pertinent to their products has been accepted by the members of the Section as one of the most satisfactory methods of procedure inaugurated in the Manufacturers Section since its formation.

To perfect the organization of the various divisions, temporary chairmen were appointed by Mr. W. Griffin Gribbel, Chairman of the Manufacturers Section, to call meetings of the groups for the purpose of organizing and electing their own chairmen and vice-chairmen. This procedure has been complied with in the Divisions shown where chairmen are indicated.

Manufacturers receiving notices from the temporary chairmen of the remaining Divisions should make every effort to be present at the time the meeting is called in order to assist in the formation of these Divisions at the earliest possible date.

A great deal of time will be saved by meetings of the Divisions as manufacturers can more readily discuss their own particular problems in which they are interested and reach conclusions more readily than in regular meetings of the Section. All conclusions and recommendations of Divisions are to be submitted to the Managing Committee of the Section for indorsement before be-

ing forwarded to the Association.

### Meter Manufacturers Division

At the meeting of the Meter Manufacturers Division held at Association Headquarters, February 24, 1920, the following resolution was adopted:

WHEREAS: The Meter Group, having been duly organized at a meeting called on February 24, 1920, desires to go on record as follows:

RESOLVED: That we pledge our full and entire support to the American Gas Association, its officers and directors, and be it further resolved, that we heartily approve of the plan of conducting and furthering the work of the Manufacturers Section by dividing the membership into groups.

This Division will canvass their prospects inviting the interest of other manufacturers not in membership to take Company membership in the Association and participation in the functions of the Division.

### Water Heater Manufacturers Division

This Division also went on record approving the formation of the Divisions and pledged the support of manufacturers interested to further the work of the Association as a whole.

The proposed plan of group publicity to be initiated at the "Own Your Home" Exposition, May 1 to 8, at the Grand Central Palace, New York City, is to have their unqualified support.

In co-operation with the Commercial Section, the Water Heater Manufacturers Division is ready to prepare one or more lectures on Gas Water Heaters with descriptive lantern slides as an educational feature to gas company employees.

Manufacturers in this Division are taking a leading part in the Campaigns with gas companies and will be very glad to further co-operate with commercial managers in any suggestions coming from the Commercial Section.



**Gas Range Manufacturers Division**

This Division had a very interesting discussion on the subject of "Merchandizing and Sales Policies." This group heartily approves of the division of manufacturers and pledges their support to the work of the Association as a whole.

On the completion of the Specifications of the Committee on Gas Range Specifications, copies of the Specification will be sent to gas range manufacturers for their approval and added suggestions.

**Office Labor Saving Devices Manufacturers Division**

At the meeting of the Office Labor Saving Devices Manufacturers Division

held at Association Headquarters, February 13, 1920, this Division pledged their hearty support in the work of the Association and an effort will be made to interest in Company membership, manufacturers in this particular field.

One of the activities of this Division will be the collection and dissemination of information on office labor saving devices applicable to the gas industry. Information on matters pertinent to this work can be obtained through the office of the Secretary of the Manufacturers Section.

It is hoped that the remaining Divisions will be organized at the earliest possible date to permit of their functioning as the others are.

**Our Membership Campaign Is Launched****Honor Roll**

GEORGE W. PARKER,	—	8 Manufacturer Company Members
CLARENCE H. FRENCH,	—	1 Manufacturer Company Member
H. A. NORTON,	—	1 Manufacturer Company Member
RICHARD REES,	—	1 Manufacturer Company Member
HEADQUARTERS,	—	3 Manufacturer Company Members

Watch this HONOR ROLL. The field representatives are now in action:

The results will be found in our next issue.

Expressions of support which are greatly appreciated:

"American Gas Association,  
130 E. 15th Street,  
New York City.

February 4, 1912.

"Gentlemen:

"I have received several copies of the booklet American Gas Association—What It Is—What It Does. This is a clean piece of literature with contents very effectively arranged and I am sure, if properly used, it will materially help the purpose for which it is intended."

"I will be very glad to send to our 125 live field salesmen this booklet with a letter and endeavor to get them busy among those who ought to be members."

Yours very truly,

RUUD MANUFACTURING COMPANY.

(Signed) A. P. Brill,  
General Manager.

"American Gas Association,  
130 E. 15th Street,  
New York City.

"Gentlemen:

"The booklet, "American Gas Association, What It Is and What It Does", received this morning, also blanks for membership in the Association."

"It is a pleasure for us to be able to pass these on to our individual salesmen, or traveling men with a cheerful letter asking them to help the membership roll in every way possible, and trust results will obtain from these efforts. We can bespeak for all of our salesmen, their hearty co-operation in this work."

"If there is anything else we can do to assist you in any way in obtaining members to the Association, kindly command us."

Yours very truly,

WM. M. CRANE COMPANY.

(Signed) T. J. Potter,  
Sales Manager.

## Convention and Exhibition

The Executive Board has definitely decided to hold the 1920 Annual Convention and Exhibition of the Association at the Hotel Pennsylvania, New York City, November 15 to 20, 1920.

The Roof Garden of the hotel will be utilized for the exhibition of appliances, a location which will prove more desirable than the ballroom of the hotel in

which the last exhibition was held. Many new features not heretofore shown will be in evidence.

Full information pertaining to this interesting yearly event to manufacturers will be distributed to Company members as soon as completed, details now being in the course of preparation by the secretary of the Section.

## Surface Indications

Pick up the analysis of sales of any large Gas Company, look for the amount of gas sold for lighting, and you will reflect that gas lighting clings as tenaciously to the bricks and mortar into which it was built as does the mussel to the rocks among which it started life.

Some years ago the scoffers at gas lighting and its lukewarm supporters had a vision of a dead dog in the pit whenever the subject was broached. Through the years controversies have arisen in which conviction on either hand was loud and earnest in tone. At times one side has sought in the person of the other a scapegoat upon which to load sins of commission and omission. Architects have fallen out of line and in again.

Changes in policy have been as the seasons. Meanwhile the cozy, homely little Bray burner, and the more pretentious mantle light have gone serenely on their way, minding their own business, and not jostling or slurring their more expensively clothed sisters.

New York City is frequently quoted as the epitome of newness and smartness in everything from office buildings to cigarettes, and yet here 30 per cent. of all gas consumed is used in brightening up the dark corners in the great city. Can we afford to be so apparently indifferent to a revenue that has stuck by us in spite of neglect and in the face of the enthusiasm lavished on such favorites as domestic and industrial fuel.

Is the light started in Baltimore in 1816 that has faithfully yielded its tithes throughout all these years to be handed a stone or a hand as cold as one, now that greener pastures beckon? There is a story written by Aesop, about a dog with a piece of meat, that might apply half-way.

There are houses being built today that will never burn any, other illuminant than gas. These houses will never contain expensive fixtures, they may never contain beautiful fixtures, but it is certain they can be shown better fixtures.

In conclusion, gas lighting has radiated appreciable heat in the cold days of soaring coal prices.

### The Pay Envelope

Is it all in the envelope holding your pay?  
Is that all you're working for day after day?  
Are you getting no more from your toil than the gold  
That little inclosure of paper will hold?  
Is that all you're after: is that all you seek?  
Does that close the deal at the end of the week?

Is it all in the envelope holding his pay?  
Is that all you offer him day after day?  
Is that all he wins by his labor from you?  
Is that the reward for the best he can do?  
Would you say of your men, when the week has been turned  
That all they've received is the money they've earned?

If it's all in the envelope, workman and chief,  
Then loyalty's days must be fleeting and brief.  
If you measure your work by its value in gold,  
The sum of your worth by your pay shall be told,  
And if something of friendship your men do not find  
Outside of their envelope you're the wrong kind.

If all that you offer is silver and gold,  
You haven't a man in your plant you can hold.  
If all that you're after each week is your pay  
You're doing your work in a short sighted way  
For the bigger rewards it's useless to hope  
If you never can see past the pay envelope.

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EDGAR A. GUEST.

### Use The Seal

The official seal of the Association, displayed on the business stationery and advertising material of its members, carries a distinct message. It tells the reader that there is an American Gas Association and it informs the reader and the public generally that the company, on whose literature the seal appears, is a member of the national organization which stands for progress in the gas industry.

As the result of the article which appeared in a previous issue of the MONTHLY, a number of companies have adopted the Association's seal for use on all of their stationery and their advertising matter. The sketch herewith will enable the photo engraver to make cuts to suit the company's individual needs.

The Association wants samples of stationery or other local material on which this seal appears and we hope to see it in general use by all of our company members and by our affiliated societies.

Company Member of



### Gas Lighting Committee Appointed

The Gas Lighting Committee of the Commercial Section has now been appointed and consists of:

T. H. Piser, Chairman, Boston, Mass.  
 C. A. Luther, Chicago, Ill.  
 E. L. Hall, Portland, Oregon  
 N. E. Gerry, Toronto, Canada  
 J. R. Stetser, Gloucester, N. J.  
 J. L. Tudbury, Salem, Mass.  
 R. A. Fancy, Newton, Mass.  
 Philmer Eves, New Haven, Conn.  
 G. M. Dolley, Bangor, Me.  
 H. C. Crafts, Pittsfield, Mass.  
 J. P. Conroy, New York, N. Y.

A meeting of the Committee to organize and decide upon what activities and plans they shall engage in was held at the office of the Chairman on March 13. The results of this meeting will appear in the May issue of the MONTHLY.

### Proportional Mixing

A meeting of the Sub-Committee on Proportional Mixing was held at the Association offices on March 5th.

Those present were Messrs. Chas. C. Krausse, Chairman, W. W. Cummings, A. L. Palmer and Paul Dorchester (representing Mr. H. L. Read.)

The Committee decided to carry out the work along the same lines as the 1919 report, to use this report as a foundation to build upon, and this report to become a supplement thereof.

The report prepared by the Committee in 1919 has been printed in pamphlet form and is available without charge to all who are interested in the subject. Requests should be made direct to Association Headquarters.

This report contains valuable information for the industrial fuel engineer, such as "the effect of excess air", "the use on fan blowers and positive pressure blowers in connection with the air-gas injector for blast burners" and tests on

"Surface Combustion", "Kemp" & "Reeves" Proportional Mixing.

The present Committee is arranging to report on the following.

A study of the actual losses as compared with the calculated losses in furnace due to excess gas.

Tests on the Needham Mixer, Maxon Premix and the Ratiometer.

This Committee desires the co-operation of the Industrial Fuel Salesmen and the Industrial Appliance Manufacturers, and will appreciate their assistance in obtaining tests on the various proportional mixing appliances.

### Prepare for Building Boom

Bradstreet reports that in 1919 building permits to the number of 359,122 were taken out in 151 cities of the United States—an increase of 82.3% over the number issued in the preceeding year, with an increase of values of 208%. The aggregate expenditures for new buildings at 120 identical cities for eleven years past was:

1909...	\$888,114,741	1915...	\$763,343,811
1910...	846,991,622	1916...	919,435,203
1911...	824,147,884	1917...	633,483,813
1912...	879,094,308	1918...	372,793,978
1913...	814,509,360	1919...	1,170,773,197
1914...	728,801,072		

Building must go on in spite of high labor and material for the demand is imperative, and the year 1920 will probably see a greater number of new buildings erected than ever before. The suspension of activities in the face of war conditions has left the nation "short" of homes and the resumption will be at a lively pace to make up for lost time. It behooves the gas man to take note of conditions and be ready to meet them.

## TECHNICAL SECTION

L. R. DUTTON, Chairman

H. W. HARTMAN, Secretary

W. S. BLAUVELT, Vice-Chairman

### MANAGING COMMITTEE — 1920

#### At Large

BLAUVELT, W. S., Detroit, Mich.  
 CASTOR, W. A., Philadelphia, Pa.  
 CHUBB, C. N., Davenport, Iowa.  
 COLLINS, D. J., (Mfr.) Philadelphia, Pa.  
 CONGODON, R. C., Atlanta, Ga.  
 DUTTON, L. R., Jenkintown, Pa.  
 EARNSHAW, E. H., Newark, N. J.  
 FIELDNER, A. C., Pittsburgh, Pa.  
 FORSTALL, WALTON, Philadelphia, Pa.  
 FULWEILER, W. H., Philadelphia, Pa.  
 HAFTENKAMP, J. F., Rochester, N. Y.  
 HAZELTINE, L. A., New York, N. Y.  
 HARPER, R. B., Chicago, Ill.  
 MACARTHUR, DONALD, Jersey City, N. J.  
 MACBETH, A. B., Los Angeles, Cal.  
 MACBETH, G. T., Mt. Vernon, N. Y.  
 NORTON, H. A., (Mfr.) Boston, Mass.  
 OLIPHANT, B. C., Buffalo, N. Y.  
 PHILLIPS, A. I., Washington, D. C.  
 STONE, C. H., Rochester, N. Y.  
 UHLIG, E. C., Brooklyn, N. Y.  
 WEBER, F. C., New York, N. Y.  
 WILLIEN, L. J., Boston, Mass.

#### Representing Affiliated Societies

BROWN, J. A., Jackson, Mich. (Michigan)  
 CHAPIN, C. H. B., New York, N. Y. (Empire State  
 G. & E.)  
 CHUBB, C. N., Davenport, Ia. (Iowa)  
 CORNISH, R. C., Philadelphia, Pa. (Pennsylvania)  
 GREY, J. C., Fort Wayne, Ind. (Indiana)  
 HART, J. G., Waukegan, Ill. (Illinois)  
 HUMPHREYS, J. J., Montreal, Canada. (Canada)  
 JONES, E. C., San Francisco, Cal. (Pacific Coast)  
 JONES, JACOB B., Bridgeton, N. J. (New Jersey)  
 LYONS, B. F., Beloit, Wisc. (Wisconsin)  
 PAIGE, C. E., Worcester, Mass. (N. E. Gas. Eng.)  
 SEDBERRY, W. H., Marshall, Tex. (South Central)

### CHAIRMEN OF SECTION COMMITTEES ORGANIZED TO DATE

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 Cast Iron Pipe Standards—WALTON FORSTALL, Philadelphia, Pa.

Chemical—E. C. UHLIG, Brooklyn, N. Y.

Vice-Chairman, R. B. HARPER, Chicago, Ill.

Deposits in Meters, Services, etc. (Sub)—O. A. MOR-

HOUS, Astoria, N. Y.

Purification—C. H. STONE, Rochester, N. Y.

Consumers Meters—W. A. CASTOR, Philadelphia, Pa.

Vice-Chairman, GEO. WHERELE, Denver, Colo.

Re-Design of Distribution Systems—F. C. WEBER, New York, N. Y.

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Electrolysis—L. A. HAZELTINE, New York, N. Y.

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Gas Works Auxiliaries—C. N. CHUBB, Davenport, Ia.

Vice-Chairman, R. A. CARTER, Jr., New York, N. Y.

Refractory Materials—W. H. FULWEILER, Philadelphia, Pa.

## Chemists Work on Handbook

Since the December Conference, the Chemical Committee has been concentrating its efforts on the revision of the Gas Chemists' Handbook published by the American Gas Institute in 1916. Following an all-day meeting of the general committee on January 22, two meetings of the Editorial Committee have been held and encouraging progress has been made. The old handbook was considered one of the most important contributions of the A. G. I. to the technical literature of the industry and the following abstract of the Chairman's report will illustrate the important changes and additions contemplated for the revised edition:

"Revision of the following chapters of the Gas Chemists' Handbook are complete:

Purification Material  
 Tar, Pitch, Creosote, Road Materials  
 Lubricating Oils

"All the chapters contain the very latest information on methods of analysis and testing that the Chemical Committee have been able to obtain. Some of the most marked improvements are as follows:

"Purification Material—Methods of Sampling; estimation of number of bushels, etc., has been improved so that an accurate estimation of the quantity in a shipment may be readily determined.



"Metallic Iron Determination—A new method has been substituted, which obviates the difficulty peculiar to the old method of the iron becoming oxidized during the test and giving low results.

"Lime—A method for this ingredient has been added.

"Kunberger or Fouling Test—This test has probably been criticized more than any other in the old handbook and while the committee recognizes that it is not an accurate test, it feels that it is the best so far devised for the purpose. It has been given much attention and two main methods devised. One for unprepared and one for prepared oxides.

"Tar, Pitch, etc.—This chapter has been thoroughly revised and all the methods brought up to date.

"Lubricating Oils—More detailed description of apparatus and some new material has been added.

"The following chapters are only waiting for the authors' finishing touches:

Cement, Ferrous Metals, Refractories  
Pipe Deposits  
Paints  
Alloys, Solder, Brasses and Bronzes.

"The following chapters are waiting for the adjustment of differences, which have arisen:

Light Oils  
Ammonia, Ammonium Sulphate and Lime  
Cyanides in Gas  
Gas Oils

"The following chapters are still being prepared:

Tables  
Gas Analysis  
Water Analysis  
Impurities in Gas

"The work of the Handbook revision has been greater than was at first anticipated and nearly all of the time of the Chemical Committee has been devoted to it. Considerable detail has developed, which not only included reviewing the old methods, but also much research work. The Committee had hoped to be finished before this but feels that the time employed was well spent and the quality sought was more important than speed of production."

The above abstract gives but a faint idea of the work which the Committee has devoted to this task, but we are sure the members will fully appreciate its worth when the revised Handbook is ready for distribution.

Progress of other technical committees as reported at the Mid-West Conference, March 19, will be published in later issues of the MONTHLY.

### Court Sets Brooklyn Gas Rate Limit at 97 Cents

An order was filed on February 26th in the United States District Court of New York by Judges Ward, Mayer and Knox, granting a temporary preliminary injunction to the Brooklyn Union Gas Company, which restrains Public Service Commissioner Lewis Nixon, State Attorney General Newton and District Attorney Lewis from enforcing the 80-cent gas law.

The order permits the Brooklyn Union Gas Company, after March 1st, to charge 97 cents per 1,000 cubic feet for gas supplied to consumers. It also directs that after April 15th next the Company must deposit the 17-cent excess allowed by the court with Richard Welling, Special Master, who in turn will deposit the money in the New York Trust Company and the Title Guarantee and Trust Company. The injunction runs until the final determination of the validity of the 80-cent gas law before the United States Supreme Court.

# New Instrument for Indicating Time for Gas-Maker

A. C. HOWARD, United Gas and Electric Engineering Corporation, New York, N. Y.

(NOTE.—The cut of time clock dial accompanying this article has, for convenience, been made up in black and white the shading indicating the various colors referred to in the article.)

FOR the last few months we have been using a substitute for the ordinary clock used by a water gas-maker.

This consists of the clock mechanism of a twelve-inch Bristol recording gauge speeded up to make one revolution per hour and fitted with a special chart prepared by us. One of these special charts is prepared for each plant in accordance with the operating schedule of its sets. The charts were prepared, as follows:

We first drew, on tracing paper, a twelve-inch circle and divided it into sixty equal parts, each representing one minute. From this tracing a Van Dyke negative was made, as from the Van Dyke a print of the desirable color could be obtained.

One of these prints cut out makes a suitable blank chart and it can be divided up into blows, up-runs and down-runs of a desired length without difficulty. The accompanying sample chart was prepared for a water gas set using gas coal for generator fuel and this chart is ready for immediate use. The one-minute divisions are for the convenience of the man making the chart and not for the gas-maker. The gas-maker does not even know the length of his run and blow, when operating with one of these instruments.

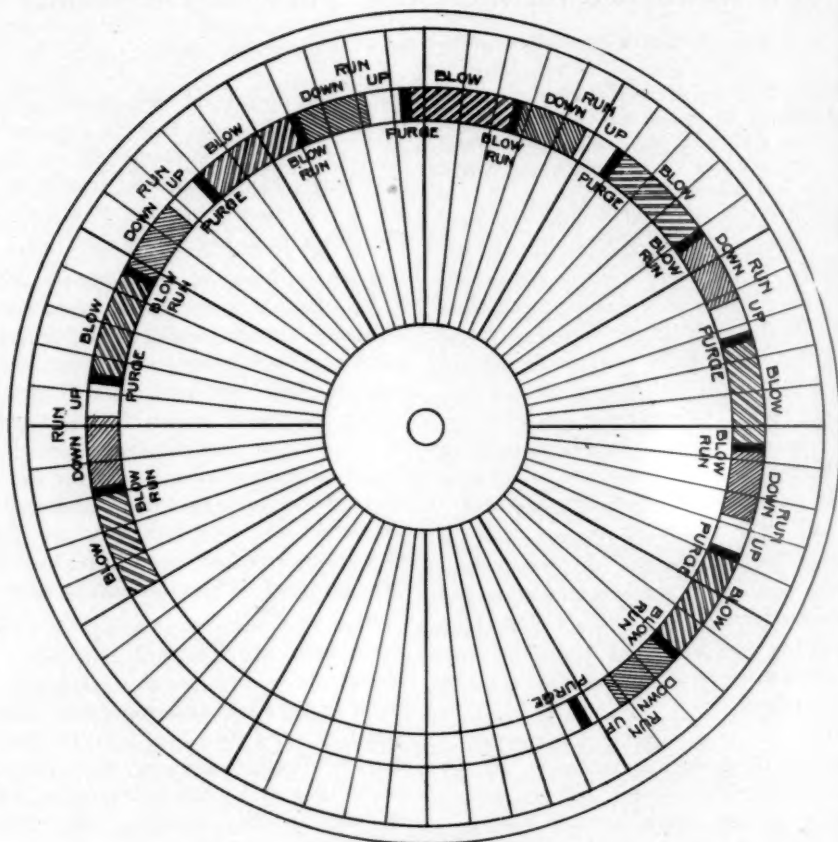
Immediately after coaling, the gas-maker sets the chart so that the pointer is opposite the beginning of the cycle shown. He has no other time-piece and uses no report but simply watches the

pointer and operates the valves as it indicates. He has to be near to the time-piece to read it accurately but an approaching change can be seen from across the room so that he does not at all times have to be close to the clock.

When used with a set having air and steam meters and carburetter valve control, the gas-maker, besides watching and following the chart instructions, has only one other thing to do from coaling to coaling and that is to turn the oil on and off. As his oil meter indicator can be turned to zero, after each run, he does not even need to mark down the oil used. Simultaneously, when putting on the blow after each coaling, the gas-maker turns his chart back to the starting point.

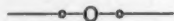
When operating sets equipped with conveniently arranged hydraulic operation our gas-makers are now using arm-chairs and are getting better results and higher capacity than ever before. This instrument makes easy work for the gas-maker because he has no report to fill out and no time to figure out. The chart automatically brings each valve change to his attention.

The time-piece permits the use of shorter runs and blows and also more evenly divided runs and blows. For example, the run may be three minutes, ten seconds, and the blow two minutes, twenty seconds, or any other number of odd seconds, that may be chosen,—a subdivision which cannot be made with an ordinary clock without such close watching on the part of the gas-maker that he becomes tired out, or he may make a mistake in the complicated calculation of the odd seconds.



**TIME CHART**  
**FOR**  
**WATER GAS SETS**  
**UNITED GAS-ELECTRIC ENGINEERING CORPORATION**

A further advantage in the use of this instrument is that a gas-maker who cannot read or tell time can operate a set with precision, provided he is sufficiently well versed in arithmetic to know when to shut off the oil.



(Continued from page 234)

This railing is placed about 18" to 24" from the edge of the roof and projects six to eight inches above it. This catches any sliding that might start and is practically the only type that can be applied to the roof of the building that has already been built.

# A Quick and Accurate Method for the Determination of $H_2S$ in Gas

By H. J. BEAN, Chemist, Pawtucket (R. I.) Gas Co.

## Procedure:—

Pass 0.1 cu. ft. of gas through 15-25 cc. of 2 normal sodium hydroxide solution, contained in wash bulb as shown in diagram, at a rate not greater than 1 cu. ft. per hour. Wash contents of bulb into a 500 cc. beaker, rinse and add rinsings to beaker. Add 15-20 cc. of normal  $BaCl_2$  solution. Put in a few drops of phenolphthaleine indicator solution and

factor gives the number of grains of  $H_2S$  per 100 cu. ft. of gas.

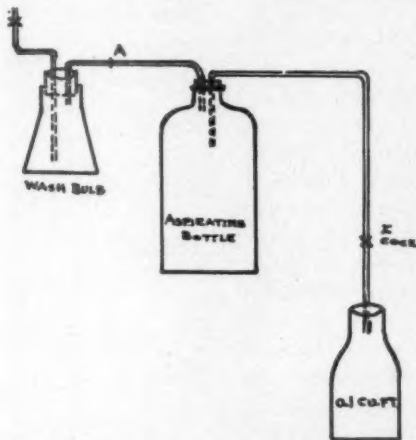
NOTE: Add the iodine solution slowly and stir the solution well while titrating.

## Apparatus:—

Small test meter or other means of measuring gas.

Special small gas washing bulb.

Rubber tubing.



add 2 normal hydrochloric acid from burette until the red color of the indicator is wholly discharged—indicating neutrality. If a little more acid is added than is required for neutralization it does not matter, but if such an excess is used as to dissolve the white precipitate, then make alkaline again with sodium hydroxide and again neutralize.

Add 5 cc. of fresh starch solution to the neutral or slightly acid solution and titrate with 1/10 normal standard iodine solution until a permanent blue is obtained.

Then, the number of cubic centimeters of iodine solution used multiplied by the

Stirring rod.

Burette and stand.

25 cc. pipette.

The wash bulb spoken of is made of an Erlenmeyer flask of 75 or 100 cc. capacity fitted with a two-holed rubber stopper carrying two glass tubes, one a capillary tube going to the bottom of the flask and the other ordinary tubing of about 4 mm. size just going through the stopper. For convenience these are bent at right angles just above the stopper.

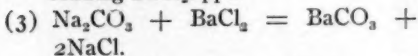
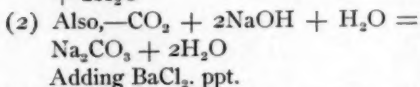
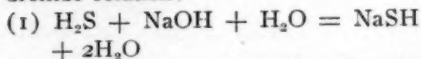
To avoid expense of a 1/10 cubic foot meter two bottles were arranged as shown and the outlet of the wash bulb connected to point A. Then after the

gas was turned on to the wash bulb, the pinch cock X was opened and the water displaced by the gas allowed to pass into the lower bottle. When 0.1 cu. ft. had gone into the lower bottle the pinch cock was closed and the gas shut off of the bulb. The point A was then disconnected to release the pressure on the liquid in bulb and the bulb taken down for analysis of contents.

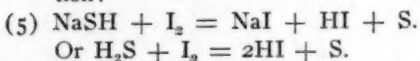
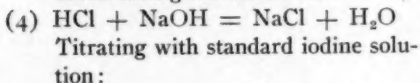
The lower bottle being calibrated for 0.1 cu. ft.

#### Reactions:—

On passing the gas into sodium hydroxide solution:



Neutralizing excess NaOH.



#### Calculation:—

1 liter of N/10 iodine solution contains 12.69 grams I.

1 cc. N/10 sol. of S. contains 0.01269 grams I.

1 liter of N/10  $\text{H}_2\text{S}$  contains  $\frac{3.207}{2}$

grams of sulphur = 1.603 grams.

1 cc. N/10 S = 0.0016 grams S.

Now 1 cc. of N/10 solution of I = 1 cc. of N/10 sol. of S.

Therefore 0.01269 grams I = 0.0016 grams S or  $0.0016 \times 15.432$  grains S = 0.02469 grains S.

Therefore we know that for each cc. of N/10 iodine solution used, there was present in the gas 0.02469 grains of sul-

phur, and, as we passed 0.1 cu. ft. of gas through the wash bulb the calculation is as follows:

No. of cc. of iodine solution  $\times 0.0261 \times 1000$  = grains of sulphur per 100 cu. ft.

If it is wished to report the sulphur as hydrogen sulphide the calculations is:

No. of cc. of iodine solution  $\times 0.0261 \times 1000$  = grains  $\text{H}_2\text{S}$  per 100 cu. ft.

Now it is customary and easier to make the standard iodine solution nearly normal and then use a factor for its strength so the figure arrived at above is multiplied by the factor of the iodine to give the correct amount of hydrogen sulphide present.

Thus: If 11.35 cc. of N/10 iodine were used and the strength of the iodine was 95%, the calculation would be

$11.35 \times 0.0261 \times 1000 \times 0.95$  = grains  $\text{H}_2\text{S}$  per 100 cu. ft., or  $11.35 \times 24.795$  = 281 grains  $\text{H}_2\text{S}$  per 100 cu. ft. of gas.

#### Reagents:—

2 normal hydrochloric acid (approximate).

2 normal sodium hydroxide (approximate).

1/10 normal iodine-standardized.

Normal barium chloride (approximate).

Phenolphthalene indicator solution.

Starch solution.

The solutions are made up as follows:—

2 normal sodium hydroxide

distilled water 1000 cc.

NaOH 80 grams

2 normal HCL (approx.) — using acid containing 30% HCL Spec. Gr. 1.168.

distilled water, 800 cc.

conc. HCL (C.P.) 200 cc.

Normal barium chloride (approx.).

distilled water 1000 cc.

$\text{BaCl}_2$ —208 grams.



*Indicator Phenolphthalene.*

200 cc. alcohol.

1 gram phenolphthalene.

*Starch solution.*

Make thin paste of about 5 grams of good powdered starch and cold water and add with stirring to about 500 cc. of actively boiling water, cool and put in a clean bottle.

Starch solution does not keep over three or four days.

*Standard Iodine.*

Mix together dry 12.7 grams of re-sublimed iodine and 12.7 grams of *potassium iodide* and add to 1000 cc. of distilled water. Let stand over 24 hours, shaking frequently, as the iodine dissolves slowly. Then filter and keep in a glass stoppered bottle.

This solution must now be standardized. Select a clear crystal of sodium thiosulphate formula  $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$ , and wipe it clean of any fine particles which may be adhering to it. The crystal should be from 0.5 to 1.0 grams weight. Weigh it on balances to four decimal places and dissolve it in about 200 cc. of distilled water in a beaker.

Then add a few cc. of starch solution and run in iodine slowly from a burette until a permanent blue is obtained.

Calculation for iodine solution:

Weight of  $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$  taken  $\times$   $40.29 \div$  the number of cc. of iodine solution used = factor for N/10 iodine.

*Example:* Suppose 0.5796 grams  $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$  taken, dissolved in water, starch added and iodine run in until a permanent blue was obtained and 24.60 cc. of iodine solution was used. Then  $0.5796 \times 40.29 \div 24.60 = 0.949 = 94.9\%$ .

The iodine solution is N/10 normal  $\times$  95.0%.

For testing gas where the  $\text{H}_2\text{S}$  is below 20 grains per 100 cu. ft., it is convenient to have the strength of the iodine

solution as low as to 0.50% of 1/10 normal.

The reaction of iodine and sodium thiosulphate is  $\text{I}_2 + 2 (\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}) = 2\text{NaI} + \text{Na}_2\text{S}_4\text{O}_6 + 2\text{H}_2\text{O}$

Mol. weight of  $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$  is 248.

Atomic weight  $\text{I}_2$  is 127.

Sulphur—32.

$\text{H}_2\text{S}$ —34.

In passing the gas through the NaOH, the gas goes through the wash bulb first and the meter second.

The foregoing test may be depended upon to give accurate results. The degree of accuracy being that with which the gas sample is measured; using a test meter, this will be well within one percent., and using an aspirating bottle of the type shown the results will be as accurate as those taken by means of a test meter. The amount of gas—one tenth of a foot—is large enough to be representative and easily measured.

The question as to whether any  $\text{H}_2\text{S}$  passed through the wash bottle and was unabsorbed was settled by putting two wash bottles in series with the usual gas rate of one cu. ft. per hour. Even on gas running as high as five hundred grains of sulphur per hundred cu. ft. no sulphur was found in the second wash bulb.

In comparison with the Tutwiler apparatus it was found that it took a little longer to run the gas through the wash bulbs and titrate them than to get the results on the Tutwiler apparatus. Four tests on the Tutwiler taking about thirty minutes and the same number by this method taking about forty-five.

Two sets of parallel tests taken with each method are tabulated and it was found that even in the hands of a careful operator, the Tutwiler apparatus gave results which varied in some cases over ten per cent., and that this variation might be on either side of the true value.

This is probably due to the fact that on the Tutwiler machine one cubic centimeter of solution is equivalent to one hundred grains of hydrogen sulphide and a small error in admitting the solution, or loss during the shaking process, causes a large difference in the results.

By taking the test into the laboratory and reading the results from a burette, much more accurate results are to be expected and also due to the fact that in the sodium hydroxide method, one cubic centimeter of liquid is equivalent to only about twenty-five grains of sulphur per hundred cubic feet of gas, there is less liability of error at that point.

The tests shown by the Tutwiler ap-

paratus were made with the solution furnished. This solution was examined and found to be considerably weaker than it was rated. It was probably made up so, as it had been kept in a glass stoppered bottle, and not exposed to the atmosphere. Errors due to this are avoided when the solution is made up and standardized where used.

In conclusion it seems that the test described fills a need of those who are desirous of knowing what their purifiers are doing. The methods using amoniacal silver nitrate and cadmium chloride being cumbersome and hard to run and slow, while that described is quick, inexpensive and accurate.

#### Water Gas Purifiers

NaOH				Tutwiler apparatus			
Inlet Box B	145	grains $H_2S$	per 100 cu. ft. gas	133	grains $H_2S$	per 100 cu. ft. gas	
Outlet " 20	"	"	"	24	"	"	"
Inlet D	5.3	"	"	6	"	"	"
Outlet " 4.7	"	"	"	5	"	"	"

Gas rate 33 M cubic feet per hour

Gas clean at meters (dry lead acetate paper test)

#### Coal Gas Purifiers

NaOH				Tutwiler apparatus			
Inlet 1st box of series	299	grains $H_2S$	per 100 cu. ft. gas	247	grains $H_2S$	per 100 cu. ft. gas	
Outlet " " "	97	"	"	102	"	"	"
" 2nd " "	19	"	"	24	"	"	"
" 3rd " "	7.4	"	"	9	"	"	"
" 4th " "	No test made			6	"	"	"

Gas rate 35 M cubic feet per hour

Gas clean at meters (dry lead acetate paper test)

## Cement Joint Practice

SINCE writing the article on the above subject, appearing in the February MONTHLY, pages 113 and following, I have had some further correspondence which I believe throws additional light on this subject. It will be remembered that in the February article, Mr. Henderson's argument for the use of cement and sand was based on the fact that tests made by Army engineers with neat cement showed a great rise in temperature during setting. (See illustration on page 115 of February MONTH-

LY.) In this connection, Mr. Freeman, under date of January 14th, writes me as follows:

"Mr. Henderson, in his letter of December 22, third paragraph, mentions the rise in temperature shown by the results of U. S. Army Engineers' tests published in Taylor and Thompson. In Professor Abrams' tests to which I referred in my letter, I understand that difficulty was experienced in insulating the specimens properly. The tests to which Mr. Henderson refers were made, I believe, on 12-inch cubes, and if insulation were difficult for the smaller specimens used in Professor

Abrams' tests, this would account for the lower temperature values which he obtained. In view of this condition, what can be said of pipe joints where a comparatively small amount of cement is used and in direct contact with a material of such high conductivity? In other words, it seems to me that the rise in temperature of cement placed in a joint if it could be observed, would be found relatively small, and, therefore, I do not see that it enters into the problem to any marked extent, and that other facts must be considered in determining the cause for possible development of shrinkage cracks."

To this I replied as below:

"Your letter of the 14th throws a flood of light on our subject for me. I did not pay special attention to the chart sent by Mr. Henderson, because as long as neat cement joints were giving me no trouble,

I was not specially interested in any proofs he might have from cement tests, why I should get trouble. From your letter it seems perfectly clear that the tests of the 12-inch cubes occurred under conditions absolutely different from those undergone by cement joints in practice. With the cubes, every attempt was made to prevent any loss of temperature, but, of course, the cement joint is in contact over a very large surface of iron of good conducting material. Under these conditions, naturally we would not get much change in temperature in our cement joints. I have written to this effect to Mr. Henderson, sending a copy of your letter, and I will await his reply with interest."

WALTON FORSTALL,  
Chairman, Committee on Cast Iron Pipe  
Standards.

## RECENT ARTICLES IN CHEMICAL PRESS OF INTEREST TO GAS MEN

Contributed by Sub-Committee on Abstracts\* of the Chemical Committee

THE ESTIMATIONS OF CYANOGEN COMPOUNDS IN CONCENTRATED AMMONIA LIQUOR. PART II—THE ESTIMATION OF THIOCARBONATE. By Percy Edwin Spielman and Henry Wood, *Journal of the Society of Chemical Industry*, Vol. 38, No. 20, 369 T (October 31, 1919). A consideration of the estimation of the thiocarbonate in ammoniacal liquor. (R. B. Harper.)

THE SALE OF GAS ON THE BASIS OF ITS HEATING VALUE. *Journal of the Society of Chemical Industry*, Vol. 38, No. 21, 407R (November 15, 1919.) A one page consideration. (R. B. Harper.)

GAS STANDARDS AND THE SALE OF GAS. *Journal of the Society of Chemical Industry*, Vol. 38, No. 21, 414R (November 15, 1919). A one column consideration of the sale of gas on the basis of its heating value. (R. B. Harper.)

A CLIP FOR PREVENTING RUBBER CONNECTIONS FROM SLIPPING OFF GLASS AND METAL TUBING AND FOR ATTACHING PRESSURE PUMPS TO TAPS. By Chas. A. Keane and G. Patchin, *Journal of the Society of Chemical Industry*, Vol. 38, No. 22, 391T (November 29, 1919). A description with il-

lustrations of a hinged metal clip equipped with a thumb screw for holding rubber tubing connections, etc. (R. B. Harper.)

MOISTURE IN BLAST-FURNACE COKE. By William H. George, *Journal of the Society of Chemical Industry*, Vol. 38, No. 22, 394T (November 29, 1919). A discussion of various factors affecting the determination of the amount of moisture in blast-furnace coke. (R. B. Harper.)

THE ACCURATE DETERMINATION OF CARBON MONOXIDE IN GAS MIXTURES. By J. Ivor Graham, *Journal of the Society of Chemical Industry*, Vol. 38, No. 2, 10T (January 31, 1920). Description of apparatus and method used for the accurate determination of carbon monoxide in mixtures with other gases. (R. B. Harper.)

AN ELECTROLYTIC HYDROGEN GENERATOR FOR THE LABORATORY. By L. D. Williams, *Journal of the Society of Chemical Industry*, Vol. 38, No. 17, 355T (September 15, 1919). Description of a small-scale cell suitable for use as a substitute for Kipp's apparatus for generating hydrogen. (R. B. Harper.)

\* Abstracts' names appear in brackets following each item.

(Continued from page 232)

## ILLINOIS

Western United Gas & Electric Co., Aurora  
 E. H. O'Meara (Miss)  
 Peoples Gas Light & Coke Co., Chicago  
 C. A. Schnerr  
 Public Service Co. of Northern Ill., Chicago  
 Dean W. Taylor  
 Freeport Gas Co., Freeport  
 Wm. S. McMaster  
 Peoples Power Co., Moline  
 Edward T. Anderson

## INDIANA

Citizens Gas Co., Indianapolis  
 R. N. Hudson

## IOWA

Peoples Gas & Electric Co., Mason City  
 Thomas L. Connor  
 Citizens Gas & Electric Co., Waterloo  
 H. L. Green

## LOUISIANA

New Orleans Railway & Light Co., New Orleans  
 Wm. E. Clement  
 John J. Flautt

## MARYLAND

Consd. Gas, Elec. Light & Power Co., Baltimore  
 John M. Blankenship  
 John B. Lewin  
 C. F. Menendez  
 Carl F. Willem

## MASSACHUSETTS

Boston Consolidated Gas Co., Boston  
 P. J. Lafore  
 The Bryant Heater & Mfg. Co., Boston  
 J. E. Kinner  
 Brockton Gas Light Co., Brockton  
 Arthur A. Wilbur  
 John J. Wise

## MICHIGAN

The Roberts Brass Mfg. Co., Detroit  
 R. A. Roberts  
 Commonwealth Power, Ry. & Lt. Co., Jackson  
 C. W. Johnson  
 Michigan Light Co., Kalamazoo  
 C. A. Barthold

## MINNESOTA

Hugo Mfg. Co., West Duluth  
 R. T. Hugo

## NEW YORK

Rathbone, Sard & Co., Albany  
 John J. Garrison  
 Russell E. Sard  
 Bronx Gas & Electric Co., New York  
 Conrad C. Bahr  
 Wm. A. Deegan  
 Frank T. Gilbert  
 Allan A. Searle  
 Fred C. Towers  
 Central Union Gas Co., New York  
 Lester H. Rex

Commonwealth Power, Ry. & Lt. Co., New York  
 H. G. Kessler

Consolidated Gas Co. of New York, New York  
 George H. Boyd  
 Hugh R. Crowell  
 William H. Darcy  
 Bernard F. Toole

Wm. H. Crane Co., New York  
 Albert W. Humm

Henry L. Doherty & Co., New York  
 B. N. Freeman

N. Y. Mutual Gas Light Co., New York  
 Andrew J. Carson  
 Samuel Ford  
 G. Howard Gardner  
 Alfred T. Harrison  
 Charles A. Harrison  
 Clinton Hunter  
 Noah D. Lambert  
 Samuel W. Shenton

Northern Union Gas Co., New York  
 Frederick W. Cross

Ruud Mfg. Co., New York  
 Carlton A. Slocum

The Texas Co., New York  
 Harry R. Hunt

## OHIO

Amherst Fuel Co., Cincinnati  
 Charles W. Henry  
 Toledo Railways & Light Co., Toledo  
 Elmer M. Calisch  
 William B. Kopfer  
 Joseph M. Pauly  
 Carl F. Schuffernecker  
 Orville H. Whitney  
 Charles C. Williams

## PENNSYLVANIA

Philadelphia Suburban Gas & Electric Co., Chester  
 Charles J. Fox  
 Frank L. Mendez  
 J. E. Mickle  
 George W. Savage  
 Philadelphia Suburban Gas & Electric Co., Jenkintown  
 W. Irving Davis  
 The United Gas Improvement Co., Philadelphia  
 Wm. H. Ebbecke  
 Herbert M. Holmes  
 Ernest G. Windle  
 Rock Sponge Co., Pittsburgh  
 Thomas A. Frazier

## WISCONSIN

New Gas Light Co., Janesville  
 Joseph P. Daratt  
 Oshkosh Gas Light Co., Oshkosh  
 R. B. Meredith

## PANAMA

Panama & Colon Gas Co., Panama  
 Samuel P. Vecker

## QUESTION BOX

THE questions and answers on accounting subjects in the Question Box have been contributed by the Accounting Section Committee on State Representatives, Mr. J. W. Heins, Chairman, who will be glad to receive inquiries from any of our members on their accounting problems.

Questions and answers under "General Problems" are the result of inquiries received at Association headquarters and answered through the committees of the various Sections or from the Association files.

The attention of the members is again called to the announcement of the Industrial Fuel Sales Committee, Mr. H. H. Clark, Jr., Chairman, that questions on their industrial fuel problems will be answered through this Committee.

Answers from our members are solicited on questions which come within their experience and such answers should refer to code number of question, A-1, G-1, etc.

—Editor.

### ACCOUNTING PROBLEMS

A-4

We have under way an analysis of our automobile operating costs.

Would it be possible to secure through your Committee some data by which a logical analysis can be made and the results presented graphically?

We have detailed costs but are anxious to secure some advice as to how other companies go about analyzing these costs and what forms they use.

### ANSWERS.

Mr. Burton Smart, State Representative, Maine

Charles H. Tenney & Company, 201 Devonshire Street, Boston, Mass., have recently gotten out an excellent sheet covering all expenses together with tabulated totals for the automobile accounts of their associated companies. We have but one copy but I think you could obtain more from them.

Mr. W. A. Sauer, Peoples Gas Light & Coke Co., Chicago, Ill.

A copy of the classification of automobile expense accounts used by this company is given below; also a description of what each sub-division of this account calls for; and a list of the classes into which each car is placed. The first page also contains a complete description of the manner in which this expense is cleared each month.

I believe this classification is very complete and it has been in successful operation in this company for some time.

### CLASSIFICATION OF ACCOUNTS

#### Automobile Expense

This account to be charged with the operating and maintenance expense of all automobiles used by the Company.

Each car to be given a number, that number to be retained as long as the car is the property or in the service of the Company.

A separate expense account or a class expense account will be kept for the cars sub-divided under the headings as listed below.

These accounts will be cleared at the close of each month into the accounts covering the class of work the cars were engaged on.



a	Labor—Chauffeur	m	Repairs—Accident—Material
b	Labor—Extra Chauffeur	n	Repairs—Minor—Labor
c	Gasolene	o	Repairs—Minor—Material
d	Dripolene	p	Overhauling—Labor
e	Cylinder Oil	q	Overhauling—Material
f	Grease	r	Garage Repair Shop—Labor
g	Miscellaneous Supplies	s	Garage Repair Shop—Material
h	Licenses	t	Garage Expense—Labor
i	Insurance	u	Garage Expense—Material
j	Tires—Replacements and Repairs	v	Depreciation
k	Repairs—Contract	w	Automobile General Charges
l	Repairs—Accident—Labor		

The distribution of expense is made by totaling the number of hours the cars were engaged during the month, then determining the rate of expense per hour and clearing the expense to the accounts the cars were engaged on, a record having been kept of the number of hours chargeable to each account.

#### Notes:

- a and b Actual cost of chauffeur labor while driving the car only
- c Actual number of gallons of gasolene used by car
- d Actual number of gallons of dripolene used by car
- e Actual cost of cylinder oil used by each car
- f Actual cost of all greases, such as cup grease, transmission grease or oil, axle grease, chain grease, or any oil or grease used on the car, not including cylinder oil
- g Cost of any accessory, and labor required to apply or keep same in repair, that may be purchased and applied to car, such as horns or parts of horns, speedometers or parts of speedometers, windshields or parts of windshields, tire covers, skid chains or parts of skid chains, lighting systems or parts of lighting systems, Prest-O-Lite recharges, etc.
- h Cost of State licenses; City vehicle tax, chauffeur's license or any special assessment that may be required.
- i Cost of insurance
- j Actual cost of tires, inner tubes, patches, cement and repairs to same
- k Actual cost of work done outside of Company's shops, or by Company labor, such as repainting, repairs to bodies, etc.
- l Actual cost of labor required to repair car damaged by accident.—In case the Company is reimbursed for damage caused by accident to car, the items "Accident Material" and "Accident Labor" should be credited with proper amounts
- m Actual cost of material used to repair damage to machines caused by accident
- n Labor necessary to adjust parts of car, grind valves, inspection, etc., that is required to keep cars in shape, outside of overhauling
- o Actual cost of material to maintain car and complete minor repairs, such as replacement of small parts that may be necessary in making repairs at night, in street or in repair shop. This not to include overhauling replacements.
- p Labor necessary to overhaul cars
- q Actual cost of material required for overhauling car
- r Labor to maintain repair shop, such as janitor service, labor to make tools, shop foreman's time and all labor in general for maintenance of repair shop
- s Expense of maintenance of repair shop, such as light, heat, water, tools for general use for repairs, and all material or supplies purchased for use in repair shop generally
- t Cost of labor to maintain garage, such as washers, oilers, janitor service, and cost of all labor that is general for all cars
- u Expense of garage maintenance, such as light, heat, water, and all material purchased for general use of all cars

## v Depreciation

w Automobile General Charges—such as Labor of superintendent in charge of garages and miscellaneous expenses.

Class "A" Ford Roadsters  
 Class "B" Ford Trucks  
 Class "C" Ford Tractors  
 Class "D" 1 Ton  
 Class "E" ½ Ton  
 Class "F" 1 Ton  
 Class "G" 2 Tons  
 Class "H" 3 and 4 Ton  
 Class "J" 4 Ton Drip

Class "K" 5 Tons  
 Class "L" 5 Tons  
 Class "M" 3 Ton Drip  
 Class "N" 4 Ton Drip  
 Class "O" ¾ Ton Emer.  
 Class "P" 3½ Ton Drip  
 Class "R" 1½ Ton  
 Class "S" 3 and 4 Ton Drip  
 Class "T" 3 Ton

**Mr. P. L. King, State Representative, Texas**

We have about fifty automobiles and the separate costs on each is recorded in an auxiliary book by the general bookkeeper. Every month a report is given to the superintendent of the automobile shop, giving information on each car as follows:

Car Number; Account Number; Number of Miles; Depreciation; Labor; Tubes and Casings; Gasoline and Lubricating Oil; Garage Expense; All other Expenses; Total.

About every six months we make an accumulative report giving the same information, and show the costs per mile in cents.

**Mr. Harry T. Hughes, State Representative, Colorado**

The system used by this Company for analysis of operating costs on automobiles is to keep a loose leaf book with sheet for each car and charge all costs to the car account. These charges are sub-divided into operation and maintenance and a comparison taken off each month as number of miles per gallon of gasoline and expense per car mile.

**GENERAL PROBLEMS****G-12**

We have been having considerable trouble from tar in our purifiers. During the summer months, the temperature in the purifiers is sometimes as high as 110 degrees.

Is it possible, with sufficient condensing apparatus, but without a shavings scrubber, to entirely prevent tar deposits in purifying boxes?

We are considering the question of installing either another condenser or a shavings scrubber. Our decision hinges largely on the answer to the above question.

Could you also send us some rule or formula for figuring size of condensers and shavings scrubbers?

**ANSWERS.****Mr. W. H. Earle, Rochester Railway and Light Co., Rochester, N. Y.**

We are now conducting some investigations in the matter of tar fog being carried forward into our purifiers and as yet our data is not complete. I am inclined to think, however, that when the gas temperatures at the inlet of the purifiers are as high as 110° it is practically impossible to eliminate the tar fog by ordinary condensation methods.

If your correspondent is not using a P. & A. Tar Extractor he undoubtedly experiences abnormal difficulties with tar deposits in his purifiers. The P. & A. type of apparatus is very efficient for removing the major portion of the tar which is not carried down by condensation temperatures. If, however, he has such apparatus in his system

it is my opinion that a shaving scrubber is better adapted to his problem than an additional condenser.

I am sorry that I cannot suggest any formula by which he can calculate the size of such a scrubber, and cannot at this time refer him to any literature from which he can derive a formula. Undoubtedly the manufacturers of condensing equipment could supply him with such data, and I am inclined to think that the Steere Engineering Co., for instance, would be very glad to do so.

**Mr. J. Van G. Postles, Purification Committee**

As to whether it is possible to remove all the tar before the purifying boxes without a shaving scrubber—I believe this is impossible, but the quantity of tar can be so reduced that it will have no tendency to deposit in the boxes.

The letter does not state whether they have a tar extractor or not. If they do not have one, that would be the best piece of apparatus to install and if they do have one it looks as though it should be cleaned. We find our tar extractors should be cleaned every four or six months.

I believe that without a shaving scrubber but with a properly functioning tar extractor and another condenser, this plant should have no trouble with tar in the purifying boxes, for then they would be able to keep the temperature of the gas below 95° F. at the inlet to the first box.

The deposit of tar in the purifying boxes is due to the cooling of the gas at this point and if the temperature of the gas can be kept the same throughout the purifying house, no tar will be deposited. This can best be done by the introduction of a small quantity of live steam at the inlet to the first box and by keeping the house closed up and well heated. This suggestion might also be used by the member to help reduce his tar.

**Mr. M. G. Welsh, Supt. Mohawk Gas Co., Schenectady, N. Y.**

I shall give you the apparatus which we are operating and this may be of some assistance.

Our water gas consists of primary and secondary condenser, P. & A. tar extractor and shaving scrubber, then the purifiers. It would be my suggestion to this company that they first install a P. & A. tar extractor which is generally accepted as being one of the most efficient pieces of apparatus for removing tar from water gas. The temperature of the gas to the tar extractor should be between 95 and 105° F. The further elimination of tar could be brought about by the use of a shaving scrubber. I am not familiar with the formula for designing shaving scrubbers, but no doubt any manufacturer of this piece of apparatus would be only too glad to furnish this.

**Dr. J. F. Wing, Chemical Committee**

It is not possible with sufficient condensing apparatus, even with a shaving scrubber, entirely to prevent tar deposits in purifying boxes. Increasing these installations, of course, reduces the tar considerably. In the case of the plant in question, it is said, that the temperature is sometimes as high as 110°. Condensing apparatus should be large enough to have this temperature under better control. After the condenser, tar may be filtered out of the gas either by a shaving scrubber or by a tar extractor. Each of these two scrub the gas efficiently. Some plants install both in series.

It would seem that in this case there is required additional condensing capacity, anyway, and either a tar extractor or a shaving scrubber.

As the manufacturing capacity of this plant is not specified, it would be better to refer the question of the size of condensers or scrubbers to manufacturers of these apparatus.

**Mr. H. O. Andrew, Purification Committee**

There really is not enough information given to answer this inquiry completely. However, I believe that very little tar trouble in the purifiers will be experienced if a sufficient condensing capacity, *properly controlled*, is used without a shaving scrubber.

If the gas is cooled to between 100-110° F. and passed through a tar extractor very little tar fog should get by. In many cases where a shaving scrubber is used to take out any considerable quantities of tar it throws a pressure so soon that it is apt to be unsatisfactory. The operation of a shaving scrubber has to be carefully controlled to give good results. I might say that at Springfield at the present time our water gas passes through one large tubular condenser which acts as a primary and secondary condenser and tar extractor all in one, resulting in oil inefficiency as well as tar deposits in the purifying boxes. We are changing this now so that the present condenser will be our primary. We will then pass the gas through a tar extractor and finally through a shaving scrubber as a sort of secondary condenser; but will probably not use shavings in this apparatus but some other material which will not throw a pressure so readily.

If we were to buy any new apparatus for this we would have used a Doherty Washer Cooler, which I believe to be the best possible way of condensing the gas and removing the tar at the same time. If the price of this is not prohibitive to your inquirer I would recommend that he consider this very seriously (about \$10,000 for five million per day).

As regards to a formula for figuring condensing capacity although there are formulas for this purpose they all are subject to considerable leeway according to operating conditions, and any company wishing to install new condensing capacity should present their detailed information to some concern whose particular business this is, and let them calculate the capacity needed.

The H. L. Doherty Company, of Wall Street, handle the Washer Cooler and no doubt would be pleased to make an estimate for such an installation if provided with the detailed information.

- G-13** Have any gas masks been developed which would be suitable as protection to workmen in cutting and tapping mains.

**ANSWER.**

**Association Headquarters**

One large company has had satisfactory experience with the Draeger Self-Rescuer Apparatus, 30-minute size, which is made and sold by the American Atmos Corporation, Wilkensburg Station, Pittsburgh, Pa. Similar devices are sold by the Mine Safety Appliances Company and the Safety First Supply Co., both of Pittsburgh.

- G-14** Gas companies who publish a house organ or company publications, are requested to place the American Gas Association on their mailing list and to notify Association headquarters of the character of the publication, when it is issued, and to whom it is sent.

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(Continued from page 240)

- A. T. Pleune, Cedar Rapids Gas Co.,  
Cedar Rapids, Iowa.
- F. A. Leach, Jr., Pacific Gas & Electric Co.,  
13th and Clay Sts., Oakland, Cal.
- Clark Hammond, United Gas Improvement  
Co., 1401 Arch St., Philadelphia, Pa.
- B. H. Jardine, Knoxville Gas Company,  
Knoxville, Tenn.

The smallest of companies may have the best of systems. The committee desires to be acquainted with and preserve

all that is best and usable, and make recommendations that are practical and acceptable to all conditions of Utility Companies. It feels that in order to do so all parties interested, or liable to become interested, should impart their problems, their needs and information on whatever successful methods they have employed, and they are hereby specifically and separately invited to do so promptly.

# Classified Directory--Manufacturers of Gas Equipment

Company Members Only, American Gas Association, Inc.

## ARC LAMPS (Gas)

General Gas Light Co., New York, N. Y., and  
Kalamazoo, Mich.  
Johnson Gas Appliance Co., Cedar Rapids, Iowa  
Welsbach Co., Gloucester, N. J.

## AUTOMATIC CONDENSATION RECEIVERS

Plant Engineering & Equipment Co., Inc., 192  
Broadway, New York, N. Y.

## BENCHES

J. H. Gautier & Co., Jersey City, N. J.  
Russell Engineering Co., St. Louis, Mo.  
The Gas Machinery Co., Inc., Cleveland, Ohio  
The U. G. I. Contracting Co., Broad & Arch Sts.,  
Philadelphia, Pa.

## BENCH IRON WORK

Davis & Farnum Mfg. Co., Waltham, Mass.  
Isbell-Porter Co., Newark, N. J.  
Russell Engineering Co., St. Louis, Mo.  
The Bartlett Hayward Co., Baltimore, Md.  
The Gas Machinery Co., Cleveland, Ohio  
The Improved Equipment Co., 60 Wall St., New  
York, N. Y.  
The Parker-Russell Mining & Mfg. Co., St.  
Louis, Mo.  
The Stacey Mfg. Co., Cincinnati, Ohio  
The Western Gas Construction Co., Fort Wayne,  
Ind.

## BOILERS (Gas)

Wm. M. Crane Co., 16 W. 32d St., New York,  
N. Y.  
General Gas Appliance Co., 103 Park Ave., New  
York, N. Y.  
Wm. Kane Mfg. Co., Inc., 1915 Adams St.,  
Philadelphia, Pa.  
Kidde & Co., 169 Chambers St., New York, N. Y.  
F. W. Ofeldt & Sons, Nyack, N. Y.  
The Bryant Heater & Mfg. Co., Cleveland, Ohio  
The Improved Appliance Co., 419 Kent Ave.,  
Brooklyn, N. Y.

## BOILERS (Gas for House Heating)

Dodd Heating Systems Limited, Toronto, Ont.  
Kidde & Co., 169 Chambers St., New York, N. Y.  
The Bryant Heater & Mfg. Co., Cleveland, Ohio

## BOILERS (Waste Heat)

The Bartlett Hayward Co., Baltimore, Md.  
The U. G. I. Contracting Co., Broad & Arch Sts.,  
Philadelphia, Pa.

## BLOWERS, BOOSTERS, EXHAUSTERS

Connelly Iron Sponge & Governor Co., 227 Fulton  
St., New York, N. Y.  
Isbell-Porter Co., Newark, N. J.  
Maxon-Premix Burner Co., Muncie, Ind.  
The Gas Machinery Co., Cleveland, Ohio  
The Improved Appliance Co., 419 Kent Ave.,  
Brooklyn, N. Y.  
The C. M. Kemp Mfg. Co., Baltimore, Md.  
The Surface Combustion Co., 366 Gerard Ave.,  
Bronx, N. Y.  
The U. G. I. Contracting Co., Broad & Arch Sts.,  
Philadelphia, Pa.  
The Western Gas Construction Co., Fort Wayne,  
Ind.  
Wilbraham-Green Blower Co., Pottstown, Pa.  
L. J. Wing Mfg. Co., 362 West 13th St., New  
York, N. Y.

## BRAZING TABLES

Rathbone, Sard & Co., Albany, N. Y.  
The Improved Appliance Co., 419 Kent Ave.,  
Brooklyn, N. Y.

## BROILERS (Hotel)

Geo. M. Clark & Co., Div., Chicago, Ill.  
Wm. M. Crane Co., 16 W. 32d St., New York,  
N. Y.

Rathbone, Sard & Co., Albany, N. Y.  
The Michigan Stove Co., Detroit, Mich.

## BURNERS (Industrial)

Century Stove & Mfg. Co., Johnstown, Pa.  
Wm. M. Crane Co., 16 W. 32d St., New York,  
N. Y.  
Equitable Meter Co., Pittsburgh, Pa.  
General Fire Extinguisher Co., Providence, R. I.  
General Gas Appliance Co., 103 Park Ave., New  
York, N. Y.  
Charles A. Hones, Inc., 91 Noble St., Brooklyn,  
N. Y.  
International Hale Gas Mixer Co., Providence,  
R. I.  
Johnson Gas Appliance Co., Cedar Rapids, Iowa  
Maxon-Premix Burner Co., Muncie, Ind.  
Tate-Jones & Co., Inc., 50 Church St., New York,  
N. Y.  
The Baltimore Gas Appliance & Mfg. Co., Balti-  
more, Md.  
The Eclipse Stove Co., Mansfield, Ohio  
The Improved Appliance Co., 419 Kent Ave.,  
Brooklyn, N. Y.  
The C. M. Kemp Mfg. Co., Baltimore, Md.  
The Surface Combustion Co., 366 Gerard Ave.,  
Bronx, N. Y.  
The A. H. Wolf Gas Radiator Co., 4 Great Jones  
St., New York, N. Y.

## BURNERS (Lighting)

American Meter Co., Inc., 105 W. 40th St., New  
York, N. Y.  
Wm. M. Crane Co., 16 W. 32d St., New York,  
N. Y.  
General Gas Light Co., New York, N. Y., and  
Kalamazoo, Mich.  
Johnson Gas Appliance Co., Cedar Rapids, Iowa  
Welsbach Co., Gloucester, N. J.

## BY-PRODUCT OVENS

By-Product Coke Corp., Chicago, Ill.  
Foundation Oven Corporation, Woolworth Build-  
ing, New York, N. Y.  
Semet-Solvay Co., Syracuse, N. Y.  
The Gas Machinery Co., Cleveland, Ohio  
The Improved Equipment Co., 60 Wall St., New  
York, N. Y.  
The Koppers Co., Pittsburgh, Pa.  
The Parker-Russell Mining & Mfg. Co., St.  
Louis, Mo.

## BY-PRODUCT RECOVERY APPARATUS

Foundation Oven Corporation, Woolworth Build-  
ing, New York, N. Y.  
Isbell-Porter Co., Newark, N. J.  
The Bartlett Hayward Co., Baltimore, Md.  
The Gas Machinery Co., Cleveland, Ohio  
The Koppers Co., Pittsburgh, Pa.  
The U. G. I. Contracting Co., Broad & Arch Sts.,  
Philadelphia, Pa.  
The Western Gas Construction Co., Fort Wayne,  
Ind.

## CALORIMETERS

American Meter Co., Inc., 105 W. 40th St.,  
New York, N. Y.  
The Brown Instrument Co., Phila., Pa.  
D. McDonald & Co., Albany, N. Y.  
Maryland Meter Works, Baltimore, Md.  
Nathaniel Tufts Meter Works, 455 Commercial  
St., Boston, Mass.  
Superior Meter Co., Brooklyn, N. Y.

## CASING, TUBING (Steel)

National Tube Co., Frick Bldg., Pittsburgh, Pa.

## CHARGING COAL

Isbell-Porter Co., Newark, N. J.  
The Bartlett Hayward Co., Baltimore, Md.  
The Gas Machinery Co., Cleveland, Ohio  
The Western Gas Construction Co., Fort Wayne,  
Ind.



**COAL AND COKE (Conveyors, Crushers, Screeners)**

R. H. Beaumont Co., 315 Arch St., Philadelphia, Pa.  
 Stevenson-Adamson Mfg. Co., Aurora, Ill.  
 Isbell-Porter Co., Newark, N. J.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Gas Machinery Co., Cleveland, Ohio  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.

**COAL TAR PRODUCTS & CHEMICALS**

The Barrett Company, 17 Battery Place, New York, N. Y.

**COCKS (Ranges, Water Heaters, Service and Meter)**

A-B Stove Co., Battle Creek, Mich.  
 Claus Automatic Gas Cock Co., Milwaukee, Wis.  
 Hays Mfg. Co., Inc., Erie, Pa.  
 Johnson Gas Appliance Co., Cedar Rapids, Iowa  
 Kitson Co., 2837 Oakford St., Philadelphia, Pa.  
 H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.  
 Standard Brass Works, Detroit, Mich.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Roberts Brass Mfg. Co., Detroit, Mich.

**COMPRESSORS**

Plant Engineering & Equipment Co., 192 Broadway, New York, N. Y. (Air Compressors).  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The C. M. Kemp Mfg. Co., Baltimore, Md.  
 The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

**CONDENSERS**

Camden Iron Works, Camden, N. J.  
 Cruse-Kemper Co., Ambler, Pa.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 Isbell-Porter Co., Newark, N. J.  
 Steere Engineering Co., Detroit, Mich.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Gas Machinery Co., Cleveland, Ohio  
 The Stacey Mfg. Co., Cincinnati, Ohio  
 The Stacey Bros. Gas Construction Co., Cincinnati, Ohio  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**COOKING AUXILIARIES**

Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Duparquet, Huot & Monouse Co., 108 W. 22nd St., New York, N. Y.  
 Johnson Gas Appliance Co., Cedar Rapids, Iowa  
 The G. S. Blodgett Co., Burlington, Vt.  
 The General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Scott Gas Appliance Co., 1311 E. St., N. W., Washington, D. C.

**COUPLINGS**

S. R. Dresser Mfg. Co., Bradford, Pa.

**CYLINDERS (Pressure)**

National Tube Co., Frick Bldg., Pittsburgh, Pa.

**DECALCOMANIA PRODUCTS**

The Meyercord Co., Inc., Chamber of Commerce Bldg., Chicago, Ill.

**DYES, DISINFECTANTS, DRY COLORS**

The Sherwin-Williams Co., Cleveland, Ohio, New York, N. Y.

**ELECTRIC CONTROLLING DEVICES**

The Cutler-Hammer Mfg. Co., Milwaukee, Wis.

**EXCHANGERS (Heat)**

The Bartlett Hayward Co., Baltimore, Md.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**EXPERT APPRAISAL**

Steere Engineering Co., Detroit, Mich.  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.

**EXTRACTORS (Tar, Dust, Fumes)**

Isbell-Porter Co., Newark, N. J.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**FITTINGS**

A-B Stove Co., Battle Creek, Mich.  
 Will W. Barnes, 31 Chelsea Place, East Orange, N. J.  
 Claus Automatic Gas Cock Co., Milwaukee, Wis.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 S. R. Dresser Mfg. Co., Bradford, Pa.  
 Eriez Stove & Mfg. Co., Erie, Pa.  
 General Fire Extinguisher Co., Providence, R. I.  
 Kitson Co., 2827 Oakford St., Philadelphia, Pa.  
 H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.  
 Shapiro & Aronson, Inc., 20 Warren St., New York, N. Y.  
 Standard Brass Works, Detroit, Mich.  
 The Gas Machinery Co., Cleveland, Ohio  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Roberts Brass Mfg. Co., Detroit, Mich.  
 The Western Gas Construction Co., Fort Wayne, Ind.  
 Welsbach Co., Gloucester, N. J.

**FITTINGS (Malleable Iron)**

Stanley G. Flagg & Co., 1421 Chestnut St., Philadelphia, Pa.

**FLEXIBLE TUBING**

Atlantic Tubing Co., Providence, R. I.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Titeflex Metal Hose Corp., Badger Ave., Newark, N. J.

**FLASHLIGHTS AND BATTERIES**

Will W. Barnes, 31 Chelsea Place, East Orange, N. J.

**FUEL BRIQUETTING**

Foundation Oven Corporation, Woolworth Building, New York, N. Y.  
 General Briquetting Co., 25 Broad St., New York, N. Y.

**FURNACES**

Century Stove & Mfg. Co., Johnstown, Pa.  
 Eriez Stove & Mfg. Co., Erie, Pa.  
 Geist Mfg. Co., Atlantic City, N. J.  
 Charles A. Hones, Inc., 91 Noble St., Brooklyn, N. Y.  
 Johnson Gas Appliance Co., Cedar Rapids, Iowa  
 Maxon-Premix Burner Co., Muncie, Ind.  
 Russell Engineering Co., St. Louis, Mo.  
 Tate-Jones & Co., Inc., 50 Church St., New York, N. Y.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.  
 The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

**GAS ENGINES**

The Bartlett Hayward Co., Baltimore, Md.

**GAS ENGINE COCKS AND VALVES**

Standard Brass Works, Detroit, Mich.

**GAS IRONS**

A-B Stove Co., Battle Creek, Mich.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Johnson Gas Appliance Co., Cedar Rapids, Iowa  
 Milwaukee Gas Specialty Co., Milwaukee, Wis.  
 Perfect Combustion Co., Chicago, Ill.  
 Strause Gas Iron Co., Philadelphia, Pa.

**GAS LOGS**

Backus Heater & Foundry Co., Inc., Boston, Mass.  
 The Mead Gas Heater Co., Delawanna, N. J.  
 Strait & Richards, Inc., Newark, N. J.

**GAS MIXERS**

Century Stove & Mfg. Co., Johnstown, Pa.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Eriez Stove & Mfg. Co., Erie, Pa.  
 Geist Mfg. Co., Atlantic City, N. J.  
 General Fire Extinguisher Co., Providence, R. I.  
 Hays Mfg. Co., Inc., Erie, Pa.  
 Improved Appliance Co., Inc., 419 Kent Ave., Brooklyn, N. Y.  
 International Hale Gas Mixer Co., Providence, R. I.  
 Johnson Gas Appliance Co., Cedar Rapids, Iowa  
 Maxon-Premix Burner Co., Muncie, Ind.  
 Strait & Richards, Inc., Newark, N. J.  
 Tate-Jones & Co., Inc., 50 Church St., New York, N. Y.  
 The C. M. Kemp Mfg. Co., Baltimore, Md.  
 The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

**GAS PLANTS (Blue)**

The Bartlett Hayward Co., Baltimore, Md.  
 The Gas Machinery Co., Cleveland, Ohio  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**GAS PLANTS (Carbureted Water)**

Gas Machinery Co., Cleveland, Ohio  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.  
 The Stacey Mfg. Co., Cincinnati, Ohio  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**GAS PLANTS (Coal) (Engineers)**

Camden Iron Works, Camden, N. J.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 Isbell-Porter Co., Newark, N. J.  
 Russell Engineering Co., St. Louis, Mo.  
 Semet-Solvay Co., Syracuse, N. Y.  
 Steere Engineering Co., Detroit, Mich.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Gas Machinery Co., Cleveland, Ohio  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.  
 The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.  
 The Stacey Mfg. Co., Cincinnati, Ohio  
 The Stacey Bros. Gas Construction Co., Cincinnati, Ohio  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**GAS RANGE WATER HEATERS**

Elliott Water Heater Co., Inc., 1246 Myrtle Ave., Brooklyn, N. Y.

**GOVERNORS, PRESSURE VACUUM & PUMP**

Plant Engineering & Equipment Co., Inc., 192 Broadway, New York, N. Y.

**HEATERS (Room)**

Backus Heater & Foundry Co., Inc., Boston, Mass.  
 Century Stove & Mfg. Co., Johnstown, Pa.  
 Geo. M. Clark & Co. Div., Chicago, Ill.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Detroit Stove Works, Detroit, Mich.  
 Eclipse Gas Stove Co., Rockford, Ill.  
 Eriez Stove & Mfg. Co., Erie, Pa.  
 Estate Stove Co., Hamilton, Ohio  
 Geist Mfg. Co., Atlantic City, N. J.  
 General Fire Extinguisher Co., Providence, R. I.  
 General Gas Light Co., New York, N. Y., and Kalamazoo, Mich.  
 Illinois Specialty Mfg. Co., Bloomington, Ill.  
 Kidde & Co., 169 Chambers St., New York, N. Y.  
 Lawson Mfg. Co., Pittsburgh, Pa.  
 New Process Stove Co. Div., Cleveland, Ohio

Reliable Stove Co. Div., Cleveland, Ohio  
 Reznor Mfg. Co., Mercer, Pa.  
 Roberts & Mander Stove Co., Philadelphia, Pa.  
 J. B. Slatery & Bro. Inc., 108-110 Lawrence St., Brooklyn, N. Y.  
 Strait & Richards, Inc., Newark, N. J.  
 The Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.  
 The Champion Stove Co., Cleveland, Ohio  
 The Mead Gas Heater Co., Delawanna, N. J.  
 The Ohio State Stove & Mfg. Co., Columbus, Ohio.  
 The Sanitary Heating Co., 233 37th St., Brooklyn, N. Y.  
 The Western Gas Construction Co., Fort Wayne, Ind.  
 The A. H. Wolff Gas Radiator Co., 4 Great Jones St., New York, N. Y.  
 Welsbach Co., Gloucester, N. J.

**HEATERS (Garage)**

Kidde & Co., 169 Chambers St., New York, N. Y.

**HEATERS (Pressing and Soldering Irons)**

Geo. M. Clark & Co. Div., Chicago, Ill.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Eclipse Gas Stove Co., Rockford, Ill.  
 Estate Stove Co., Hamilton, Ohio  
 General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 Charles A. Hones, Inc., 91 Noble St., Brooklyn, N. Y.  
 Johnson Gas Appliance Co., Cedar Rapids, Iowa  
 Strait & Richards, Inc., Newark, N. J.  
 The Bryant Heater & Mfg. Co., Cleveland, Ohio  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.

**HIGH PRESSURE SYSTEMS**

Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.  
 General Fire Extinguisher Co., Providence, R. I.  
 H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.  
 Selas Co., 521 W. 23d St., New York, N. Y.  
 The Gas Machinery Co., Cleveland, Ohio  
 The C. M. Kemp Mfg. Co., Baltimore, Md.  
 The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

**HOLDERS (Structural Steel Works))**

Camden Iron Works, Camden, N. J.  
 Cruse-Kemper Co., Ambler, Pa.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Stacey Bros. Gas Construction Co., Cincinnati, Ohio  
 The Stacey Mfg. Co., Cincinnati, Ohio  
 The Western Gas Construction Co., Fort Wayne, Ind.

**HOT PLATES**

A-B Stove Co., Battle Creek, Mich.  
 Century Stove & Mfg. Co., Johnstown, Pa.  
 Geo. M. Clark & Co. Div., Chicago, Ill.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Detroit Stove Works, Detroit, Mich.  
 Eclipse Gas Stove Co., Rockford, Ill.  
 Eriez Stove & Mfg. Co., Erie, Pa.  
 General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 Rathbone, Sard & Co., Albany, N. Y.  
 J. B. Slatery & Bro., Inc., 108-110 Lawrence St., Brooklyn, N. Y.  
 The Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.  
 The Champion Stove Co., Cleveland, Ohio  
 The Eclipse Stove Co., Mansfield, Ohio  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Michigan Stove Co., Detroit, Mich.  
 The A. H. Wolff Gas Radiator Co., 4 Great Jones St., New York, N. Y.  
 The Ohio State Stove & Mfg. Co., Columbus, Ohio  
 Union Stove Works, 20 Beekman St., New York, N. Y.  
 Weir Stove Co., Taunton, Mass.

**INCINERATORS**

Estate Stove Co., Hamilton, Ohio  
Rudd Mfg. Co., Pittsburgh, Pa.

**INSTRUMENTS (Measuring, Testing and Recording)**

American Meter Co., 105 W. 40th St., New York, N. Y.  
Bacharach Industrial Instrument Co., Pittsburgh, Pa.  
Bailey Meter Co., Cleveland, Ohio  
The Brown Instrument Co., Phila., Pa.  
Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.  
Equitable Meter Co., Pittsburgh, Pa.  
D. McDonald & Co., Albany, N. Y.  
Maryland Meter Works, Baltimore, Md.  
Precision Instrument Co., 21 Halsey St., Newark, N. J.  
Republic Flow Meters Co., 565 Washington Blvd., Chicago, Ill.  
Steele Engineering Co., Detroit, Mich.  
The Schaeffer & Budenberg Mfg. Co., Brooklyn, N. Y.  
The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.  
The Western Gas Construction Co., Fort Wayne, Ind.

**INSULATING MATERIALS**

Celite Products Co., 11 Broadway, New York, N. Y.  
Davis & Farnum Mfg. Co., Waltham, Mass.

**KILNS (For Firing Glass, China and Pottery)**

B. F. Drakenfeld & Co., Inc., 50 Murray St., New York, N. Y.  
General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
Russell Engineering Co., St. Louis, Mo.  
The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.  
The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

**LIGHTERS (Ranges)**

Claus Automatic Gas Cock Co., Milwaukee, Wis.  
Milwaukee Gas Specialty Co., Milwaukee, Wis.  
Safety Gas Lighter Co., Haverhill, Mass.  
Strause Gas Iron Co., Philadelphia, Pa.  
The Michigan Stove Co., Detroit, Mich.  
Welsbach Co., Gloucester, N. J.

**LIGHTING (Fixtures)**

Will W. Barnes, 31 Chelsea Place, East Orange, N. J.  
Shapiro & Aronson, Inc., 20 Warren St., New York, N. Y.  
Welsbach Co., Gloucester, N. J.

**LIGHTING (Gas Domes, Portables, etc.)**

Will W. Barnes, 31 Chelsea Place, East Orange, N. J.  
Kramer Bros. Lamp Co., 585 Broadway, New York, N. Y.  
Shapiro & Aronson, Inc., 20 Warren St., New York, N. Y.  
Welsbach Co., Gloucester, N. J.

**LIGHTING (Glassware)**

Shapiro & Aronson, Inc., 20 Warren St., New York, N. Y.  
Welsbach Co., Gloucester, N. J.

**LIGHTING (Incidentals)**

Storrs Mica Co., Owego, N. Y.

**LIGHTING (Mantles)**

General Gas Light Co., New York, N. Y., and Kalamazoo, Mich.  
Welsbach Co., Gloucester, N. J.

**METAL RECEPTACLES**

Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
Charles A. Hones, Inc., 91 Noble St., Brooklyn, N. Y.  
The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.

The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.  
United Lead Co., 111 Broadway, New York, N. Y.

**METERS**

American Meter Co., 105 W. 40th St., New York, N. Y.  
Bacharach Industrial Instrument Co., Pittsburgh, Pa.  
Bailey Meter Co., Cleveland, Ohio  
Cleveland Gas Meter Co., Cleveland, Ohio  
Equitable Meter Co., Pittsburgh, Pa.  
John J. Griffin & Co., 1521 Race St., Philadelphia, Pa.  
Helme & McIlhenny, 1349 Cherry St., Philadelphia, Pa.  
D. McDonald & Co., Albany, N. Y.  
Maryland Meter Works, Baltimore, Md.  
Metric Metal Works, Erie, Pa.  
Precision Instrument Co., 21 Halsey St., Newark, N. J.  
Rotary Meter Co., 52 Vanderbilt Ave., New York, N. Y.  
Superior Meter Co., Bush Terminal, Brooklyn, N. Y.  
The Cutler-Hammer Mfg. Co., Milwaukee, Wis.  
The Sprague Meter Co., Bridgeport, Conn.  
Nathaniel Tufts Meter Works, 455 Commercial St., Boston, Mass.

**METERS (Air and Steam)**

Republic Flow Meters Co., 565 Washington Blvd., Chicago, Ill.  
The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.

**METERS (Steam, Condensation, Oil, Hot and Cold Water)**

Plant Engineering & Equipment Co., Inc., 192 Broadway, New York, N. Y.

**METER CONNECTIONS, SEALS, Etc.**

American Meter Co., 105 W. 40th St., New York, N. Y.  
Cleveland Gas Meter Co., Cleveland, Ohio  
S. R. Dresser Mfg. Co., Bradford, Pa.  
Equitable Meter Co., Pittsburgh, Pa.  
Helme & McIlhenny, 1349 Cherry St., Philadelphia, Pa.  
D. McDonald & Co., Albany, N. Y.  
H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.  
Superior Meter Co., Bush Terminal, Brooklyn, N. Y.  
The Lattimer Stevens Co., Columbus, Ohio  
The Sprague Meter Co., Bridgeport, Conn.  
Nathaniel Tufts Meter Works, 455 Commercial St., Boston, Mass.

**METER PROVERS**

American Meter Co., 105 W. 40th St., New York, N. Y.  
Equitable Meter Co., Pittsburgh, Pa.  
John J. Griffin & Co., Philadelphia, Pa.  
Helme & McIlhenny, 1349 Cherry St., Philadelphia, Pa.  
D. McDonald & Co., Albany, N. Y.  
Maryland Meter Works, Baltimore, Md.  
Superior Meter Co., Bush Terminal, Brooklyn, N. Y.  
Nathaniel Tufts Meter Works, 455 Commercial St., Boston, Mass.

**METER SHELF**

Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.

**OFFICE LABOR SAVING DEVICES**

Addressograph Co., Chicago, Ill.  
Burroughs Adding Machine Co., Detroit Mich.  
Elliott-Fisher Co., Harrisburg, Pa.  
Kalamazoo Loose-Leaf Binder Co., Kalamazoo, Mich.  
Library Bureau, Boston, Mass.  
Monroe Calculating Machine Co., Woolworth Bldg., New York, N. Y.  
The Rand Co., North Tonawanda, N. Y.  
Underwood Typewriter Co., Vesey St., New York, N. Y.

**OIL (Diaphragm)**

John J. Griffin & Co., 1521 Race St., Philadelphia, Pa.  
Superior Meter Co., Brooklyn, N. Y.

**OVENS (Baking and Cooking)**

Geo. M. Clark & Co. Div., Chicago, Ill.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Eclipse Gas Stove Co., Rockford, Ill.  
 Famous Oven Manufacturing Co., 110 W. 42nd St., New York, N. Y.  
 General Fire Extinguisher Co., Providence, R. I.  
 General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 Meek Oven Mfg. Co., 18 W. 34th St., New York, N. Y.  
 The G. S. Blodgett Co., Burlington, Vt.  
 The Crandall-Pettee Co., Hudson St., New York, N. Y.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Ohio State Stove & Mfg. Co., Columbus, Ohio  
 The Union Steel Products Co., Ltd., Albion, Mich.  
 The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

**OVENS (Annealing, Japanning, Drying, Core, etc.)**

Famous Oven Manufacturing Co., 110 W. 42nd St., New York, N. Y.  
 Gehnrich Indirect Heat Oven Co., Inc., 62 Franklin Ave., Brooklyn, N. Y.  
 General Fire Extinguisher Co., Providence, R. I.  
 General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 Johnson Gas Appliance Co., Cedar Rapids, Iowa  
 Meek Oven Mfg. Co., 18 W. 34th St., New York, N. Y.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The C. M. Kemp Mfg. Co., Baltimore, Md.  
 The Surface Combustion Co., 366 Gerard Ave., New York, N. Y.  
 The Union Steel Products Co., Ltd., Albion, Mich.  
 Young Bros. Co., Detroit, Mich.

**OVENS (Warming)**

Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Eclipse Gas Stove Co., Rockford, Ill.  
 General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 Meek Oven Mfg. Co., 18 W. 34th St., New York, N. Y.  
 The G. S. Blodgett Co., Burlington, Vt.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Union Steel Products Co., Ltd., Albion, Mich.

**PAINTS AND VARNISHES**

The Sherwin-Williams Co., Cleveland, Ohio, New York, N. Y.

**PHOTOMETERS**

American Meter Co., 105 W. 40th St., New York, N. Y.  
 Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.  
 D. McDonald & Co., Albany, N. Y.  
 Maryland Meter Works, Baltimore, Md.  
 Nathaniel Tufts Meter Works, Boston, Mass.

**PIPE**

Camden Iron Works, Camden, N. J.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 General Fire Extinguisher Co., Providence, R. I.  
 National Tube Co., Frick Bldg., Pittsburgh, Pa.  
 Steere Engineering Co., Detroit, Mich.  
 The Bartlett Hayward Co., Baltimore, Md.  
 United Lead Co., 111 Broadway, New York, N. Y.

**PIPE CASTINGS AND SPECIALS**

Davis & Farnum Mfg. Co., Waltham, Mass.  
 Isbell-Porter Co., Newark, N. J.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Stacey Mfg. Co., Cincinnati, Ohio  
 The Western Gas Construction Co., Fort Wayne, Ind.

**PIPE CLAMPS AND SLEEVES**

Davis & Farnum Mfg. Co., Waltham, Mass.  
 S. R. Dresser Mfg. Co., Bradford, Pa.

**PIPE PACKING**

Celite Products Co., 11 Broadway, New York, N. Y.  
 General Fire Extinguisher Co., Providence, R. I.  
 United Lead Co., 111 Broadway, New York, N. Y.

**PIPE TOOLS (Caulking, Cutting, Tapping)**

General Fire Extinguisher Co., Providence, R. I.  
 H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.  
 United Lead Co., 111 Broadway, New York, N. Y.

**PLATE WARMERS**

Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Duparquet, Huot & Moneuse Co., 108 W. 22nd St., New York, N. Y.  
 General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.

**PORCELAIN ENAMEL PARTS (Stoves, Lamps,**

**Linings, Stamping and Spinnings)**  
 Baltimore Enamel & Novelty Co., Baltimore, Md.  
 Eclipse Gas Stove Co., Rockford, Ill.  
 The Enamel Products Co., Cleveland, Ohio  
 The Porcelain Enamel & Mfg. Co., Baltimore, Md.  
 The Union Steel Products Co., Ltd., Albion, Mich.

**PRESSURE GAUGES**

American Meter Co., 105 W. 40th St., New York, N. Y.  
 Bacharach Industrial Instrument Co., Pittsburgh, Pa.  
 Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.  
 Equitable Meter Co., Pittsburgh, Pa.  
 General Fire Extinguisher Co., Providence, R. I.  
 D. McDonald & Co., Albany, N. Y.  
 Maryland Meter Works, Baltimore, Md.  
 Superior Meter Co., Bush Terminal, Brooklyn, N. Y.  
 The Brown Instrument Co., Phila., Pa.  
 The Bryant Heater & Mfg. Co., Cleveland, Ohio  
 The Gas Machinery Co., Cleveland, Ohio  
 The Schaeffer & Budenberg Mfg. Co., Brooklyn, N. Y.  
 The Western Gas Construction Co., Fort Wayne, Ind.  
 Nathaniel Tufts Meter Works, Boston, Mass.

**PYROMETERS**

The Brown Instrument Co., Phila., Pa.

**PUMPS**

American Meter Co., 105 W. 40th St., New York, N. Y.  
 Gas Machinery Co., Cleveland, Ohio  
 Nathaniel Tufts Meter Works, Boston, Mass.  
 Plant Engineering & Equipment Co., Inc., 193 Broadway, New York, N. Y. (Centrifugal, Reciprocating & Sump).  
 Superior Meter Co., Brooklyn, N. Y.  
 The Western Gas Construction Co., Fort Wayne, Ind.  
 L. J. Wing Mfg. Co., 362 West 13th St., New York, N. Y.

**PURIFIERS**

Camden Iron Works, Camden, N. J.  
 Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.  
 Cruse-Kemper Co., Ambler, Pa.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 Gas Machinery Co., Cleveland, Ohio  
 Isbell-Porter Co., Newark, N. J.  
 Steere Engineering Co., Detroit, Mich.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.  
 The Stacey Bros. Gas Construction Co., Cincinnati, Ohio  
 The Stacey Mfg. Co., Cincinnati, Ohio  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.

## PURIFYING MATERIALS

Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.  
 Eph Lyon, Trust Company Bldg., Franklin, Pa.  
 Gas Purifying Materials Co., Long Island City, N. Y.  
 J. F. Henderson Co., 1707 Commonwealth Bldg., Pittsburgh, Pa.

## RADIATORS

James B. Clow & Sons, Chicago, Ill.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Ericz Stove & Mfg. Co., Erie, Pa.  
 General Fire Extinguisher Co., Providence, R. I.  
 Kidde & Co., 169 Chambers St., New York, N. Y.  
 J. B. Slattery & Bro., Inc., 108-110 Lawrence St., Brooklyn, N. Y.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Mead Gas Heater Co., Delawanna, N. J.  
 The A. H. Wolff Gas Radiator Co., 4 Great Jones St., New York, N. Y.

## RANGES (Domestic)

A-B Stove Co., Battle Creek, Mich.  
 Century Stove & Mfg. Co., Johnstown, Pa.  
 Geo. M. Clark & Co. Div., Chicago, Ill.  
 Chambers Manufacturing Co., Shelbyville, Ind.—(Fireless type)  
 Bartlett & Co., Inc., Philadelphia, Pa.  
 Comstock-Castle Stove Co., Quincy, Ill.  
 Abram Cox Stove Co., Philadelphia, Pa.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Detroit Stove Works, Detroit, Mich.  
 Dangler Stove Co. Div., Cleveland, Ohio  
 Eclipse Gas Stove Co., Rockford, Ill.  
 Ericz Stove & Mfg. Co., Erie, Pa.  
 Estate Stove Co., Hamilton, Ohio  
 National Stove Co. Div., Lorain, Ohio  
 New Process Stove Co. Div., Cleveland, Ohio  
 Quick Meal Stove Co. Div., St. Louis, Mo.  
 Rathbone, Sard & Co., Albany, N. Y.  
 Reliable Stove Co. Div., Cleveland, Ohio  
 Roberts & Mander Stove Co., Philadelphia, Pa.  
 The Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.  
 The Champion Stove Co., Cleveland, Ohio  
 The Eclipse Stove Co., Mansfield, Ohio  
 The General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 The Michigan Stove Co., Detroit, Mich.  
 The Ohio State Stove & Mfg. Co., Columbus, Ohio  
 The Peninsular Stove Co., Detroit, Mich.  
 The A. H. Wolff Gas Radiator Co., 4 Great Jones St., New York, N. Y.  
 Union Stove Works, 70 Beekman St., New York, N. Y.  
 Vesta Gas Range & Mfg. Co., Chattanooga, Tenn.  
 Weir Stove Co., Taunton, Mass.

## RANGES (Hotel)

Geo. M. Clark & Co. Div., Chicago, Ill.  
 Comstock-Castle Stove Co., Quincy, Ill.  
 Abram Cox Stove Co., Philadelphia, Pa.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Detroit Stove Works, Detroit, Mich.  
 Duparquet, Huot & Moneuse Co., 108 W. 22nd St., New York, N. Y.  
 Eclipse Gas Stove Co., Rockford, Ill.  
 Estate Stove Co., Hamilton, Ohio  
 The General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 Roberts & Mander Stove Co., Philadelphia, Pa.  
 The Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.  
 The Michigan Stove Co., Detroit, Mich.

## REFRACTORY MATERIALS

J. H. Gautier & Co., Jersey City, N. J.  
 Harbison-Walker Refractories Co., Pittsburgh, Pa.  
 Quigley Furnace Specialties Co., 26 Cortlandt St., New York, N. Y.  
 Russell Engineering Co., St. Louis, Mo.  
 Tate-Jones & Co., Inc., 50 Church St., New York, N. Y.  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.  
 The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.

## REGULATORS (Governors)

American Meter Co., 105 W. 40th St., New York, N. Y.  
 Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.  
 Equitable Meter Co., Pittsburgh, Pa.  
 Gas Machinery Co., Cleveland, Ohio  
 Isbell-Porter Co., Newark, N. J.  
 H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.  
 Reynolds Gas Regulator Co., Anderson, Ind.  
 Steere Engineering Co., Detroit, Mich.  
 The Brown Instrument Co., Phila., Pa.  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.  
 The Cleveland Rotary Meter Co., Cleveland, Ohio  
 The Sprague Meter Co., Bridgeport, Conn.  
 The Western Gas Construction Co., Fort Wayne, Ind.  
 L. J. Wing Mfg. Co., 362 West 13th St., New York, N. Y.

## REDUCING VALVES (Gas, Air, Steam, Water)

Plant Engineering & Equipment Co., Inc., 192 Broadway, New York, N. Y.

## REPAIRS (Gas Meters and Appliances)

Helme & McIlhenny, 1349 Cherry St., Philadelphia, Pa.  
 Maryland Meter Works, Baltimore, Md.  
 Superior Meter Co., Brooklyn, N. Y.  
 The Western Gas Construction Co., Fort Wayne, Ind.

## RETORTS

Gas Machinery Co., Cleveland, Ohio  
 J. H. Gautier & Co., Jersey City, N. J.  
 Harbison-Walker Refractories Co., Pittsburgh, Pa.  
 Russell Engineering Co., St. Louis, Mo.  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.  
 The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.

## RUST PREVENTATIVE

Superior Laboratories, Grand Rapids, Mich.

## SCRUBBERS

Camden Iron Works, Camden, N. J.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 Foundation Oven Corporation, Woolworth Building, New York, N. Y.  
 Gas Machinery Co., Cleveland, Ohio  
 Isbell-Porter Co., Newark, N. J.  
 Steere Engineering Co., Detroit, Mich.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.  
 The Koppers Co., Pittsburgh, Pa.  
 The Stacey Bros. Gas Construction Co., Cincinnati, Ohio  
 The Stacey Mfg. Co., Cincinnati, Ohio  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.

## SEPARATORS (Oil and Steam)

Plant Engineering & Equipment Co., Inc., 192 Broadway, New York, N. Y.

## SERVICE BOXES, CLAMPS, Etc.

Camden Iron Works, Camden, N. J.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 General Fire Extinguisher Co., Providence, R. I.  
 Hays Mfg. Co., Inc., Erie, Pa.  
 H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.

## SPECIALS—CAST IRON

Camden Iron Works, Camden, N. J.

## STEAM TRAPS

Plant Engineering & Equipment Co., Inc., (Corliss Valve) 192 Broadway, New York, N. Y.

## STILLS (Benzol, Toluol)

Foundation Oven Corporation, Woolworth Building, New York, N. Y.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Koppers Co., Pittsburgh, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.



**STOVES (Confectioners, Laundry, Tailor)**

A-B Stove Co., Battle Creek, Mich.  
 Geo. M. Clark & Co. Div., Chicago, Ill.  
 Wm. M. Crane Co., 16 W. 32d St., New York,  
 N. Y.  
 The General Gas Appliance Co., 103 Park Ave.,  
 Brooklyn, N. Y.  
 The Improved Appliance Co., 419 Kent Ave.,  
 Brooklyn, N. Y.

**STRAINERS (Gas, Air, Steam, Water)**

Plant Engineering & Equipment Co., Inc., 192  
 Broadway, New York, N. Y.

**STRUCTURAL STEEL WORKS (See Holders)****TANKS (Ammonia, Oil, Water)**

Camden Iron Works, Camden, N. J.  
 Cruse-Kemper Co., Ambler, Pa.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 Gas Machinery Co., Cleveland, Ohio  
 National Tube Co., Frick Bldg., Pittsburgh, Pa.  
 Steere Engineering Co., Detroit, Mich.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Improved Appliance Co., 419 Kent Ave.,  
 Brooklyn, N. Y.  
 The Stacey Bros. Gas Construction Co., Cincin-  
 nati, Ohio  
 The Stacey Mfg. Co., Cincinnati, Ohio  
 The Western Gas Construction Co., Fort Wayne,  
 Ind.

**THERMOMETERS**

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 N. Y.  
 The Brown Instrument Co., Phila. Pa.  
 Connelly Iron Sponge & Governor Co., 227 Fulton  
 St., New York, N. Y.  
 Gas Machinery Co., Cleveland, Ohio  
 General Fire Extinguisher Co., Providence, R. I.  
 Improved Appliance Co., 419 Kent Ave., Brook-  
 lyn, N. Y.  
 The Schaeffer & Budenberg Mfg. Co., Brooklyn,  
 N. Y.  
 The Western Gas Construction Co., Fort Wayne,  
 Ind.

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 Gas Machinery Co., Cleveland, Ohio  
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 Minneapolis Heat Regulator Co., Minneapolis,  
 Minn.  
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 The Bryant Heater & Mfg. Co., Cleveland, Ohio

**THERMO VALVES**

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 Pittsburgh Water Heater Co., Pittsburgh, Pa.

**THORIUM**

Welsbach Co., Gloucester, N. J.

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**TURBINE (Steam)**

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 York, N. Y.

**VALVES**

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 Connelly Iron Sponge & Governor Co., 227 Fulton  
 St., New York, N. Y.  
 Gas Machinery Co., Cleveland, Ohio  
 General Fire Extinguisher Co., Providence, R. I.  
 Isbell-Porter Co., Newark, N. J.  
 Plant Engineering & Equipment Co., Inc., 192  
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 Steere Engineering Co., Detroit, Mich.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Bryant Heater & Mfg. Co., Cleveland, Ohio  
 The Improved Appliance Co., 419 Kent Ave.,  
 Brooklyn, N. Y.  
 The Improved Equipment Co., 60 Wall St., New  
 York, N. Y.  
 The Stacey Mfg. Co., Cincinnati, Ohio  
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 N. Y.  
 Detroit Stove Works, Detroit, Mich.  
 Eclipse Gas Stove Co., Rockford, Ill.  
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 General Gas Appliance Co., 103 Park Ave., New  
 York, N. Y.  
 Humphrey Co., Kalamazoo, Mich.  
 Kidde & Co., 169 Chambers St., New York, N. Y.  
 Lawson Mfg. Co., Pittsburgh, Pa.  
 The Kompak Company, New Brunswick, N. J.  
 New Process Stove Co. Div., Cleveland, Ohio.  
 Peninsular Stove Co., Detroit, Mich.  
 Philadelphia Stove Co., Philadelphia, Pa.  
 Pittsburgh Water Heater Co., Pittsburgh, Pa.  
 Rathbone, Sard & Co., Albany, N. Y.  
 Reliable Stove Co. Div., Cleveland, Ohio  
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 more, Md.  
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